DOCUMENT RESUME

ED 136 967 PS 009 247

AUTHOR Goodson, Barbara Dillon; Hess, Robert D.
TITLE Parents as Teachers of Young Children: An Evaluative Review of Some Contemporary Concepts and Programs.
SPONS AGENCY Bureau of Educational Personnel Development (DHEW/OE), Washington, D.C.
PUB DATE May 75
NOTE 242p.; Revised Edition

EDRS PRICE MF-$0.83 HC-$12.71 Plus Postage.
DESCRIPTORS Child Rearing; Family Environment; Family School Relationship; Intelligence Quotient; Intervention; Low Income Groups; Parent Attitudes; Parent Child Relationship; *Parent Education; *Parent Participation; *Preschool Education; *Preschool Programs; *Program Descriptions; *Program Evaluation

ABSTRACT

This paper examines and summarizes information about the success of parent-centered educational intervention programs for disadvantaged preschool children. Historical shifts in the role of the family and the community in education are traced and four types of parent participation educational programs are identified. They are: (1) parents as policy makers (2) parents as more effective teachers of their own children (3) parents as supporting resources for the school and (4) parents as better parents. More than 20 program descriptions are presented which include demographic data, assumptions underlying the program, program goals for the children and the parents, details of program operation, distinctive features of the program, hypotheses tested by the program and evaluation results. Evaluation data from all the programs are combined to provide an assessment of the overall effectiveness of parent training programs. Analysis of these data indicate that the programs consistently produced significant immediate gains in children's IQ scores, seemed to show long-term effects on children's IQs and their school performance, and seemed to alter in a positive direction the teaching behavior of parents. A reference list of program addresses is also included. (JMB)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED136967

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

REVISED OCTOBER 1975

PARENTS AS TEACHERS OF YOUNG CHILDREN:

AN EVALUATIVE REVIEW OF SOME CONTEMPORARY CONCEPTS AND PROGRAMS

Barbara Dillon Goodson
Stanford University

Robert D. Hess
Stanford University

May 1975

PS009247

PREFACE

The growth of programs designed to involve parents in the education of their children is part of a national effort to intervene educationally in the lives of children in low-income areas. Many of the programs developed in the last decade in this overall endeavor have been experimental and exploratory--based on experience and on assumptions about the nature of early education and the ways it is affected by the social environments of the young. There has been relatively little systematic review of the effectiveness of various program alternatives and of different curricula. This summary is an attempt to offer a resource for those who are interested in one type of intervention--preschool programs in which parents play a central role.

The summary was prepared for use in the Urban/Rural School Development Program, a project for school-community collaboration supported with funds from the Bureau of Educational Personnel Development, U.S. Office of Education. It has more general application, however, and may be useful for a wider audience.

The effort and cooperation of many persons went into this report. Directors of the parent training programs were especially helpful in supplying materials describing their programs and in making comments on preliminary drafts of relevant sections of the report. We hope the descriptions of individual programs are accurate. Those distortions that remain are our responsibility. We hope they are few and minor.

Several people deserve specific mention. Louise Manning helped edit early drafts of the report; Debbie Younggren helped organize and type early drafts; Martha Puff assisted in its production, typing, and coordination through later stages. Elizabeth Lucchesi and Jay Thorp produced the final typed version, and Betty Smith gave us useful editorial suggestions on the final draft.

CONTENTS

INTRODUCTION 1

Types of Parent Participation in Education 2
Historical Shifts in the Role of Family and Community in Education 4
The Upstream Struggle for Greater Parent Participation 6
Previous Efforts to Educate Parents 8
Assumptions Underlying the Program 10
The Conceptual Outline for Reviewing the Programs 11
A Cautionary Note 13

PROGRAM DESCRIPTIONS AND EVALUATIONS 15

THE EFFECTIVENESS OF PARENT TRAINING PROGRAMS 201

Overall Effects of the Programs on the Children 201

Immediate Outcomes on Intelligence Tests 203
Long-Term Outcomes 203
Conclusions 215

Differential Effects of the Programs on Children's IQ Scores. . 216

Effects of Program Format 219
Effects of Content of the Parent Components 221
Effects of Teacher/Parent Ratio. 223
Effects of Structure and Specificity in the Parent Components. 224
Within-Program Evaluation of the Effects of the Parent Components. 225
Conclusions. 226

Overall Effects of the Program on Parents 227

Immediate Outcomes in Parent Attitudes 228
Immediate Outcomes in Parent/Child Interactions 229
Immediate Changes in the Home Environment. 231
Other Changes in Parents 232

Differential Effects of the Programs on Parents 232

CONCLUDING STATEMENTS. 233

APPENDIX 237

REFERENCES 241

LIST OF TABLES

1. List of Programs and Their Developers 17

2. Predictors of Program Effectiveness 217

LIST OF FIGURES

1. Immediate Gains on Standardized Intelligence Tests 204

2. Timing of Follow-up Testing for Programs That Carried Out Testing 209

3. Changes in Intelligence Test Scores in Follow-up Testing . . . 210

4. Summary of Gains by Experimental and Control Groups (Grouped by Pretest IQ) 239

5. Follow-up Changes in IQ by Magnitude of Pre- Posttest Gains . . 240

INTRODUCTION

The spirit of innovation and social reform that characterized preschool educational programs in the sixties is giving way to the consolidation of programs in educational and legal structures. Through publication of materials, workshops, conferences, and guidelines, the experience gained from experimental efforts is being used to develop early educational programs and install them in school districts through local, state, and federal programs. The politicization of early education and child care has created pressures on state and federal legislative bodies to formalize training, credentialling, and guidelines into legal requirements. The experimental and "special" programs of the sixties are apparently becoming budget line items of the seventies.[1]

This incorporation of programs into bureaucratic and organizational structures seems to have been motivated more by a conviction about the importance of early intervention and child care than by the success of the programs themselves. Definitive evaluation studies are not yet available, and the general tone of preliminary studies has typically not been positive. Consolidation and evaluation do not necessarily go hand in hand. Concurrently, however, there has been pressure to assess the effectiveness of early intervention programs. This interest stimulated several major evaluations and reviews of programs (White et al., 1974; Bronfenbrenner, 1974; Cicirelli, 1969) and numerous conferences and publications.

Evaluation of the overall effectiveness of programs has usually been the primary focus in large-scale studies (the Head Start planned variation studies are an exception). There have also been demands for evaluation of the relative effectiveness of alternative types of curricula and instructional strategies used within major intervention formats. This review is is oriented toward a particular type of intervention with low-income families--preschool programs, often home-based, in which parents have a central role. This intervention strategy was developed as an alternative to child-centered, school-based efforts. In this paper, we examine and summarize information about the success of intervention programs that are focused on parents.

One major feature of social experiments of the 1960's was the involvement of families and communities in a variety of patterns of conflict and collaboration with schools. The extent of the home-involvement movement is not documented and probably cannot be, since many local programs operate without public recognition and with little printed material or records to make an inventory possible. On the basis of information acquired in the course of this review, it appears likely that preschool programs in which parents have a central role number in the hundreds.

---

[1] This trend is illustrated by the findings of a forthcoming policy study (Forgione *) that the volume of early childhood legislation at the state level was seven times greater in the 1973 legislative sessions than in the 1970 sessions; by the continuing activity in the Congress for child care legislation; by the continued funding for Head Start; and by an outpouring of books, instructional materials, filmstrips, etc., on curricula and programs.

(*) P.D. Forgione, Jr. An exploratory analysis of kindergarten legislation in select states between 1971 and 1973 legislative sessions. Stanford University, dissertation in progress.

Parent-centered educational programs for young children are only one form of parent participation, and it is worthwhile to distinguish among different types of participation in school activities by community and family members. The forms these interactions take are shaped by the ideological orientation of the sponsoring groups and their political, social, and educational concerns. The parent-centered programs reviewed here are usually not a response to the political issues of community control, but their approach and rationale grow out of several themes that recur in descriptions of the nature of educational and social disadvantage. In this review, we indicate what some of these themes are and define some categories that can be used to sort parent involvement into distinct types of school-parent interaction.

The proliferation of preschool programs that include parent participation thus stimulates several questions:

> What are the assumptions underlying the involvement of parents, and what rationale is offered as a basis for the programs?
>
> In what ways are parents being involved, and what roles are they expected to play?
>
> Is there evidence that some parent involvement programs have more effect than others on the academically relevant performance of the children toward whom they are directed?

This review is organized around three objectives: (1) to identify four distinct categories of parent participation in early education; (2) to describe programs designed to teach parents to train their own preschool children; and (3) to summarize the studies that have evaluated the effectiveness of involving parents as teachers of their own children.

Types of Parent Participation in Education

Parent involvement and parent participation are terms that are widely used and that have diffuse meanings. The terms can refer to a broad range of contacts between parents and schools and parents and children. We differentiate four distinct types of parent involvement. Each type represents an approach used by intervention programs; each type represents to some degree the implicit or explicit goals of the program or activity for the parents. Programs that involve parents are concerned with changing the parents--their knowledge, behavior, attitudes, or some combination of the three. The extent to which changing the parents is given priority varies greatly from one type of program to another. The focus of a program's impact helps identify the type of parent participation.

These four focuses cover most early education intervention programs and will be in a general sense familiar to the reader:

A. Parents as policy-makers
B. Parents as more effective teachers of their own children
C. Parents as supporting resources for the school
D. Parents as better parents

In programs with the goal of parents as policy-makers, it is usually assumed that parents should have a greater degree of control over the educational programs affecting them and their children. This goal is essentially political, with the aim of increasing parent power. (In fact, however, the implementation of the goal through groups such as Parent Advisory Boards often gives little actual power to the parents.) It is assumed that reform of the educational curriculum by parents will ultimately result in a better educational experience for the children of these parents. In a few programs, there is a subsidiary educational purpose: it is assumed that giving parents more control over the schools will increase the parents' sense of control over their own lives and will subsequently influence their behavior with their children. Parents who feel powerful may be more likely to feel responsible for their child's development and to take an active part in his education.

Programs with the aim of assisting parents to become better teachers are designed to give parents new competencies. They specify desirable new parental behaviors to be developed which are intended to support increased cognitive and social development of the children. Efforts to make parents more aware of their potential capabilities as teachers are based on research showing the effect of the style of mother/child interaction and language patterns on the child's intellectual performance. Parents are seen as crucial in the child's development, and direct efforts are applied to parental behavior as a way of reaching the child. Education is brought into the familial relationships.

In a number of programs, parent participation is organized to utilize parents as supporting resources. In these programs parents are encouraged to be more interested in and supportive of educational activities in general and of their own child's schooling in particular. Program sponsors want parents to become more involved in their child's education. Programs with this goal do not usually specify particular behaviors to be developed in parents. The primary aim seems to be to develop a spirit of home/school cooperation and sense of working together toward common educational ends for the child. The assumption is that increased home support and involvement in education will improve the low-income child's motivation to learn and achieve. The goal is to reduce the distance between home and school by bringing the family into the school environment.

Finally, there is the goal of producing better parents. In these efforts, "better" implies parents who are better informed about child development principles, nutrition, home economics, and their individual child's developmental progress. It is assumed that one reason for the relatively lower performance of many low-income children by school-age is that their parents are unaware of their child's changing needs. As a result, the parents may fail to stimulate their child sufficiently or frustrate him with unrealistic demands. This conception of the program assumes that what low-income parents lack is knowledge to guide their child-rearing, and this knowledge the school can offer. Changes in parents' knowledge presumably will change their child-rearing practices. In this case, parents become another set of students.

These four goals are similar in invoking an implicit standard of parenting that is considered most likely to produce intelligent, well-adjusted, academically successful children. This standard of parenting draws more from the middle-income than from the low-income style of parent/child interaction, language, and values. The goals set for low-income families in parent-involvement programs are not goals shared solely by program sponsors or professionals. They are common to a large segment of the population--teachers, school administrators, and middle-class families share the goals of interested, supportive parents, more knowledgeable parents, parents who are teachers. The value of achievement in school is also shared by low-income families. Ready acceptance by the public of home-involvement programs may be related to general acceptance of the goals of the program.

Programs that are initiated with any one of these goals are concerned with changing parents in ways that will positively influence children's school performance. The children's intellectual development is the primary concern of these programs, although social and emotional development are often secondary concerns. The four goals for parents indicate that programs differ in what they offer to parents as a way of reaching the children. Programs with the goals of parents as policy-makers, more effective teachers, or supporting resources attempt to give parents new competencies. The programs offer parents opportunities to make decisions, training in patterns of teaching and parent/child interaction, and opportunities to talk with teachers or join in classroom activities. Programs with the goal of better-informed parents offer knowledge or information. This paper focuses on programs with the goal of increasing parents' effectiveness as teachers. These programs seek to give parents teaching competencies that are hypothesized to be related to children's development and potential for school success.

Historical Shifts in the Role of Family and Community in Education

In some ways, these programs are new; in other ways, they represent an extension of activities and approaches to family involvement in the past. Schools and parents in certain respects seem to have a natural, inherent zone of conflict that may easily bring them to confrontation. In the history of education in the United States, the main responsibility for educating children has shifted among the family, the school, and the church, producing different arrangements for sharing control at different times. The redistribution of power between community and school has followed periods of dissatisfaction and conflict.

The recent push for community and family involvement in the educational functions of local schools represents one pressure to change the balance of power. On the other hand, it seems to coincide with a trend toward more autonomy for schools from political and community control. The implications of the growth of parent-centered and other parent-participation programs are not confined to the educational achievement of the child or the betterment of the parent. The development of such programs also has significance for the distribution of power between the family and the school.

Historically, formal schooling played a small part in the lives of most children in the United States. Whether with respect to the number of hours in school, the months of the year that school was permitted to consume of the child's time, and the age of compulsory attendance, if any, the role of formal schools was not a major one, despite the great commitment to education held by the settlers who came to America. There were geographical reasons for the limited role of the school: for instance, in the southeastern United States, the dispersion of families made it unfeasible to have organized classes. There were economic reasons: families needed the work that children could contribute or the income that a part-time or full-time job would provide. The schools that were established, primarily in New England, were usually in the hands of the minister or church, and training in piety was the goal. In colonial education during the seventeenth and much of the eighteenth centuries, the family and the church were the institutions society held responsible for socializing and educating children. Children learned values, skills, morals, as well as reading and writing, at their home, at church, or from their neighbors in on-the-job training as apprentices. It was a highly integrated system of education, in that the families who were interested in having their children educated held roles in and responsibility for that education (Cremin, 1970).

Formal schooling increased in importance during the late eighteenth and nineteenth century for a number of reasons. For example, denominational competition led to the establishment of schools and belief in education as the key to social and financial advancement. The growing importance of formal schooling created a change in role for parents, who less often acted as teachers of their children. Until the late nineteenth century, however, the basic building block of the expanding system of public education was the "village school" or community school (Tyack, 1974), and this meant that the local patrons controlled the school their children attended. Responsibility for the actual teaching passed almost completely from the family, but the community controlled the hiring of the teacher and the choice of curriculum. Parents were involved in making the important decisions about the kind of education their children would receive.

In the period 1890 to 1920, an important shift occurred in American education, a shift from the community school system to the urban school system (Tyack, 1974; Kirst & Mosher, 1969). The educational professionals advocated the transfer of control over the schools from the local community to the professionals. This involved the consolidation of a number of loosely connected schools under a small group of administrators and the introduction of an expanded bureaucratization of education. The rural system of education was seen as archaic and inadequate for preparing future members of the new technological society. As Ellwood Cubberley put it:

> Because the rural school is today in a state of arrested development, burdened by educational traditions, lacking in effective supervision, controlled largely by rural people, who, too often, do not realize either their own needs or the possibilities of rural education, and taught by teachers who, generally speaking, have but little comprehension of the rural-life problem. . . the task of reorganizing and redirecting rural education is difficult (in Tyack, 1974, p. 21).

The educational professionals undertook consolidation with the purpose of "keeping politics out of the schools," that is, eliminating local involvement in the running of the schools. This reorganization was highly successful.

The twentieth-century legacy of these developments was a separation of the family and community from the schools, both in roles and power. The professionalization of teachers and school administrators further increased the distance between home and school. For low-income groups, differences between their own culture and that of the school system and teachers (which was the middle-class culture) accentuated the social distance between home and school.

The Upstream Struggle for Greater Parent Participation

Parents in individual family units and in community groups have been attempting to reduce their isolation and to have greater involvement, both participatory and political, in the schools. The resulting conflicts and collaborations and the issues they evoke are widely discussed in academic literature and the public media. It is not appropriate to try to review this literature here or recount even the most notorious school/community battles or accommodations. Some have been intensely hostile and bitter; others seem to be models of consensus and cooperation. It is worthwhile, however, to summarize some of the major influences that have moved the field of early education toward greater school/family collaboration and indicate how different these influences are for the several distinctive types of parent and community participation.

Minority and low-income communities are one major source of pressure for increased parent participation. Dissatisfaction with the disparity between community and ethnic values and culture on one hand, and the materials and instructional program of the schools, on the other hand, along with a growing demand for self-determination in minority communities, has created a politicization of these communities and a demand for community control of social institutions, especially the school. Community groups began to press for greater membership on school boards, greater opportunity to influence the school program. Program sponsors and funding agencies often responded positvely to this desire for increase in community power in school decision. Through a progression from individual involvement to advisory board to parent-run schools, a number of changes were made in federal and in some state legislation to assure parental participation in policy decisions through mandatory provision in legislation. This change, if it has a lasting effect, will indeed be a slight step away from school autonomy to greater sharing in the politics of educational systems.

The fervor of interest in this country in developing academically superior and politically equal educational opportunities for young children inspired a series of studies of the prior-to-school environments of young children and a more thorough examination of the academically relevant competence that young children brought to the classroom. The problem was defined as one of low educational achievement, and a considerable

number of social scientists set about to study the "problem" and offer solutions. The most prominent diagnosis of the "problem" in both public and academic areas was that the relatively reduced academic achievement followed from an educationally impoverished environment. Analysis of children's performance seemed to indicate difficulties in the early grades that were not changed by the experience of schooling. This pattern came to be known as "cumulative deficit" and the initial efforts in Head Start were oriented toward compensating for the presumed lack in the child's experience and home environment. Although there were other interpretations of the nature of the problem, especially those that described it as an expression of wide-spread social and economic inequities in the society and that described the school as unresponsive and ineffectual, the dominant view was that the child's environment was inadequate to prepare him for successful achievement in the classroom.

The central features of the presumed environmental deficiencies were: lack of verbal stimulation, exposure to inadequate verbalization in the home, lack of cognitive stimulation in the home environment, and absence of attitudes that developed achievement motivation in the child. The family was seen as the mediating agency through which the social and economic deprivations of the community were transmitted to the child.

The compensatory education movement that dominated early education in the 1960's was one of several crusades of reform that influenced schooling of the young in the past. Maria Montessori's philosophy and schools were developed to help the poor children of Rome during the late nineteenth century. Robert Owen, a Welsh socialist, developed schools for children whose parents worked in factories. The kindergarten was developed in Germany by Froebbel to ameliorate the effects of urban and industrialized society upon the young. Some of the arguments of these reformers who viewed early education as the route to achieving better conditions for children sound remarkably similar to the public arguments that led to the establishing of Head Start in 1965 for a still younger group of children.

The desire to improve the child's educational performance and the view of the family as a contributor to his problems in school inevitably made the family, especially mothers, targets for intervention efforts. It was, perhaps, this justification that made it difficult for program developers to recognize the other implications of the "clinical model" or "deficit approach" to early education in low-income and minority areas. The potential insult to the self-esteem and competence of the mother and its possible impact upon her and the child were too frequently ignored. This, however, was one of the educational developments that gave rise to the types of parent involvement which made the family and community the targets of special educational attention.

A related tactic was to involve the parents in more of the activities of the school program. This came from a recognition of both the rights

of the mother and of the resources she could offer the teacher and the child. In some instances, however, it took the form of volunteer contribution to the program of the school, as in cases where mothers served as aides in the classroom. The rationale for these associations of family and school was that they benefited the mother and the child. They thus seem to have much in common with the philosophy underlying the deficit approach to family involvement. Some of the motivation for these contacts with the family may be the awareness of the SES and cultural differences that exist between the middle-class white school and the low-income or minority community. In any case, this type of participation does not really reverse the nation-wide trend toward autonomous schools which are relatively isolated from family influence. Professional domination continues in these educational programs. Professionals may be designing new ways to involve parents, but the professionals control the form and functioning of the education.

It should be noted that our selection criteria for this review favored programs that had been evaluated and thus were usually funded and managed by professional groups rather than initiated by the parents themselves. We recognize that there are parent-initiated and -controlled programs that may be as effective as these described here. There is undoubtedly a great deal of merit in such programs, and they may be preferable in some ways to programs brought to the community from outside. They do not, however, offer the information about program effects needed for adequate evaluation and could not be included in this report.

Previous Efforts to Educate Parents

Efforts to educate parents are not unique to the 1960's and 1970's, at least not in their conception. Although the goals and the type of parents in the programs have changed, there are common elements with earlier movements. Studies of the history of parent education (Brim, 1959; Sunley, 1955) show the idea to be an old one. Reports of child-rearing advice were communicated to mothers through pamphlets as early as the eighteenth century (Brim, 1959), and organized mothers' groups existed previous to 1820 (Sunley, 1955). These groups, called Maternal Associations, met to discuss child-rearing problems. The women were usually Protestant-Calvinist mothers who were concerned about the religious and moral education of their children. The existence of these Maternal Associations attests to the continuous interest in the importance of children and child-rearing problems in the United States. The middle-class status of the women involved is also a constant feature of parent education in the United States through most of its history. These early efforts in parent education, however, can be characterized by the religious basis of their ideology of child-rearing, which made them unique to their time period.

In the late 1800's, three national groups developed which greatly increased the organized efforts in parent education: the American Association of University Women, the Child Study Association of America, and the National Congress of Parents and Teachers. All three groups were con-

cerned with educating parents in child development in order to help them become more effective child-rearers. Mothers themselves were instrumental in forming the Child Study Association. As with the Maternal Associations, the parents themselves sought education on child-rearing. However, the trend was toward parents looking to professional groups for assistance in their education, rather than depending on themselves. During the early 1900's, professional groups were also beginning to offer education to parents. The National Congress of Parents and Teachers, for example, was formed by concerned philanthropists, religious and political leaders, who expressed a desire to stimulate parents to learn more about child-rearing. The efforts of the three national organizations typically reached middle- and upper-class women. The NSSE Yearbook of 1929 stated that the parent education programs of the period around 1920 were not remedial programs for underprivileged families but were "supported by parents already giving thoughtful consideration to training" (p. 276). Underprivileged mothers received some parent education through the settlement houses being established during the same period.

Both Brim and the NSSE Yearbook indicate that the period 1925-1935 was one of sudden expansion of interest in parent education (and with early education). By 1920 there were over 75 major organizations conducting parent education programs. These included the national private organizations, university-based research programs, teachers' colleges, state departments of education and vocational education, public and private school systems, social agencies, child guidance agencies, health agencies, and religious groups (Brim, p. 328). As Mary D. David (1927) stated in a bulletin from the United States Bureau of Education, "Parenthood is becoming a real profession."

Since 1930, there has been an expansion in the extent and variety of parent education. The focus of parent education efforts changed between 1820 to 1940, from the early interest in children's moral and religious development, to an interest in children's emotional and personality development, to an interest in physical health, and then in mental health. The focus on cognitive and school-related behavior that has preoccupied the post-Head Start programs was not evident until the last 15 to 20 years. Middle-class parents continue to be primary participants in parent education efforts. Even the concern with developing skills that would prepare the young child for successful school performance has not been confined to programs designed for low-income parents. Major public media corporations have begun to offer a range of records, toys, magazines, and television programs oriented toward middle-income families.

The parent participation programs reviewed here defined low-income families as the target population and increased cognitive development and school achievement for the children as the goals. These programs are, in short, another expression of the compensatory education movement.

Assumptions Underlying the Programs

The developers of most of these programs share several assumptions about parent involvement. The first, which we call the home deficit assumption, is that the home in a low-income community often is an environment that does not adequately prepare the young child for successful entry into the first grades of public school. This assumption is based on research showing that lower-class or lower-income homes are different from middle-class homes on a number of variables potentially significant in a child's development, such as level of home stimulation, type and pattern of stimulation, language style, pattern of parent/child interaction, motivation, etc. The research results, however, are not unequivocal and are still the subject of much controversy.

The second assumption, drawing from research on critical periods in development, is that the early years are particularly important in setting the pace and direction of cognitive growth. The choice of preschool children as the target population is often justified by interpreting research on intellectual development as showing that most of a child's intellectual potential relative to his peers is predictable by age four (Bloom, 1964). Program sponsors cite research that emphasizes the early development of important intellectual functions, such as language ability. Consequently, it is assumed that successful intervention in the cognitive and language development of low-income children would optimally take place at the time of the most important changes--the preschool years (Hunt, 1967). The concept that low-income children fall farther and farther behind the older they get (cumulative deficit) is another source of motivation for early intervention.

The third assumption, the family effects assumption, is that the impact of the family is not usually overcome by later schooling. This assumption is drawn from both old and very new research showing that the family has a major effect upon the educational outcome of its children (Coleman, 1966; Hess, 1969; Jencks, 1972). The impact of the family is not, it seems, greatly modified by experience in school, at least not for most of the children of the nation. The effect of these reports is to support a policy of reallocation of educational resources toward including parents in the educational process at an early age. Parents whose own educational opportunities were limited might benefit and assist their young children by becoming involved in programs offered by the local schools or other professional groups.*

---

*Although these programs are focused on the parent/child relationship in the home and its influence upon educability, some program developers also believe that the schools also fail to offer a suitable educational environment for low-income children. They advocate changes in the schools to make them more responsive and accommodating toward low-income and culturally-different children. This would give the child the support of both home and school. The complex issues surrounding demands for changes in the schools, while obviously important, were not usually raised in the descriptions of the programs reported here.

It is important to recognize that the three shared assumptions represent a particular period of thinking in education. Most of the programs reviewed in this paper were initiated in the middle and late 1960's, at a time when the concept of intervening in the home of low-income families was accepted as an effective way to equalize opportunities for children. Most recently, in new programs that have been developed and in modifications of older programs, assumptions have changed. Some program developers see themselves as facilitators rather than interveners. That is, they attempt to identify parents' own goals and then help parents plan and implement their own programs with their children. The educational interchange between parents and professionals seems to be moving toward a sharing process and away from a didactic intervention.

The Conceptual Outline for Reviewing Programs

Four ways that programs engage parents were identified: (1) those that attempt to place parents in policy-making roles; (2) those that train parents to teach their own children; (3) those that encourage parents to support the efforts of the school; and (4) those that attempt to train parents to be better informed in child development, nutrition, and early education--in short, to be better parents. The programs reviewed here fall into the second category--those intended to teach parents to prepare their children for school. Some of these programs include activities of the other categories. The outline devised for describing and analyzing the programs accommodates activities oriented toward teaching parents to be teachers. It includes four major areas of consideration:

(1) the salience of the parent component in the total program
(2) the content of the parent component
(3) the teacher/parent ratio
(4) the specificity and structure of the parent component

1. Salience of the parent component

This factor concerns the program format; that is, who is the target of the program efforts--parents, children, parent/child pairs, or both groups separately but equally. Four types of program format make up the four levels of this factor: (a) home visits only, (b) parent classes only, (c) home visits plus preschool classes for the children, (d) parent classes plus preschool classes for the children.

The programs using home visits or parent classes only are considered to have the greatest emphasis on the parent component. The total program efforts are put into working with the parents; the parent component is the total program. The effects of the programs on the children are assumed to be indirect, dependent on changes in the parents. Programs that work with mother/child pairs, but concentrate on the mothers, also are considered to assign highest priority to the parent component.

In some programs, the program efforts are divided between parent training (through home visits or parent classes) and an instructional program for the children which is independent of the parent training. Program efforts are oriented toward both parents and children, with both the parent and child components integral to the plan of intervention. The effects of these programs on children are assumed to be both direct and indirect--direct effects from the preschool classes and indirect effects from the parent training.

The programs with the least salient parent components offer parents forms of involvement that are often considered less central to the program; parents and children participate in independent activities. Parents are invited to participate in a Parent Night or parent/teacher conferences, but the focus of these programs is on direct instruction or intervention with the children. Programs concerned with parents as teachers are not likely to fall in this category.

2. Content of the parent component

The programs reviewed are all concerned with improving parents' skills in working with their children. They differ, however, with respect to the specific area of parent behavior focus of the training. Four distinct curricula are distinguished among the different programs. Three of the curricula emphasize different aspects of children's development which parent/child interaction are intended to stimulate: verbal sensory-motor, general cognitive. The fourth kind of curriculum emphasizes parents' knowledge of child development principles.

Some programs encourage parents to elaborate their language in daily interaction with their child in order to better stimulate his language development. The parents' language itself is also a focus of training. Other programs encourage parent/child interactions that facilitate the child's sensory-motor development through specific physical activities. A third group of programs focus on parent behaviors that promote the child's overall cognitive growth, including language development, conceptual development, reasoning, and so on. In a fourth group of programs, the parent program does not focus on parent training and parent/child interactions but rather on increasing parents' understanding of child development principles.

3. Teacher/parent ratio

The ratio of teachers to parents varies from one program to another. In some programs, teacher and parent work together in a one-to-one relationship. In others the ratio is larger: either the teacher or teachers work with all the mothers as a group, or work with small groups of four or five mothers. The programs offer rationales for the method chosen. The one-to-one interaction is seen as more intense and personal; a group of mothers learning together is considered to provide group reinforcement for change.

4. Specificity and amount of structure in the parent component

The programs differ in the degree of <u>specificity</u> of suggestions given to parents for improving their interactions with their child. In some programs, specific teaching techniques are explicitly described. In other programs, suggestions are more general and open-ended. For instance, parents are encouraged to increase their use of language, to be more responsive to the child's comments, to play more teaching games, etc.

Programs also differ in the amount of <u>structure</u> evident in the parent training. "Structure" refers to the degree to which program sponsors set out the parents' behavior during the actual training and when at home working with their own children. In some programs, the parents

participate in specific, predefined tasks, presentations and practice sessions; in other programs there is more flexibility in determining each session's activities, or parents have some choice in their activities.

Three levels are distinguished for each of the two factors of specificity and structure. High specificity means that the program for the parents has a specific focus in terms of desired parent behaviors, usually a set of techniques to be acquired by parents for their interactions with their children. Medium specificity means that the parents' program has general goals for parents in terms of skills and techniques, but the final parent behaviors desired are not specified in such detail. Low specificity means the program does not define goals in terms of parent behaviors or skills.

High structure means that the parents' participation is organized around a specific set of tasks. Medium structure means that parent activities are more flexibly organized. Programs may involve parents primarily through active tasks that are not necessarily part of a sequence and thus not standard across mothers or across groups of mothers in a program. Low structure means that parents do not participate in planned tasks.

These four factors--salience of the parent component, content of the parent component, teacher/parent ratio, and level of specificity and structure in the parent component--were selected as potentially important variables influencing program effectiveness. In the next section of the paper, 29 programs that trained parents as teachers are briefly described and their evaluation results presented. In the light of these program evaluations, four questions will be discussed in the Summary and Conclusions section:

Is there a relationship between the salience of the parent component and the effectiveness of the total program in producing changes in children and parents?

Is there a particular content for the parent component that makes the total program more likely to be effective in producing changes in children and parents?

Are programs with a smaller teacher/parent ratio more likely to be effective in producing changes in children and parents?

Are programs with greater specificity or structure in the parent component more likely to be effective in producing changes in the children and parents?

A Cautionary Note

Certain problems are inherent in comparisons of the effectiveness of parent participation models in early education programs. First, in this review, program effectiveness is primarily judged in terms of the criterion of cognitive gains for the children, but many programs were designed to achieve other important goals, such as improvements in children's and

parents' self-concepts. These other goals obviously should be considered in any final conclusions. Second, there are methodological problems. Comparable tests are not used in all program evaluations. Some programs rely on standardized, normed tests; others develop and use their own tests. There is variation in the rigor of the evaluation efforts. Often, choices are made for programmatic reasons which limit the scope of an evaluation. It would be easy to assume that the programs with the most extensive evaluations are the most effective. There is evidence, however, that the sophistication of a program's evaluation is not related to reported program effectiveness (Jamison, 1974). Third, there is variation among the programs on factors that are not examined, such as age of children and number of hours of intervention. The potential effects of these factors make comparisons less than conclusive. Fourth, it is likely that programs which fail to produce results are not reported, leaving a reviewer with a biased sample of programs showing varying degrees of success. Fifth, some of the most important questions about the effects of parent participation require follow-up data, and such data are often not available.

These problems with cross-program comparisons justify a cautionary note to be added to conclusions made at this time. There are trends emerging across programs, but these must be considered as tentative. Several programs have on-going evaluation activities and new information is accumulating. The data available now, however, will contribute to more precise ways of talking about parent participation.

PROGRAM DESCRIPTIONS AND EVALUATIONS

The 29 programs described and evaluated in this section are listed in Table 1. The order of appearance of the programs is based on their "profiles" on each of the four features described in the Introduction. In general, programs with similar profiles are clustered together. (See Table 2, p. 217 for the "profiles.")

A number of sources were used to identify programs for consideration and several criteria were applied in selecting a program for review. To generate a pool of parent participation programs from which to choose, the following sources were used: ERIC Clearinghouse (a computer search), other bibliographies of parent participation and compensatory education programs, references to other programs in program reports, and any "fugitive," unpublished materials we could obtain on individual programs. Two criteria guided selection of a program for this review. One criterion was the availability of a program evaluation. The other was the adequacy of the information on the working details of a program.

Because of differences in the quality and completeness of the written program reports, not all of the programs are equally well covered on each of these topics.

We attempted to present the descriptions from the point of view of the program sponsors. Their program reports were the basis of our description and classification. Staff members in each program were contacted beginning in the spring of 1974 to solicit the most current evaluation data. Review of each program description by the program sponsors was invited, and several descriptions were revised in response to sponsors' comments and criticisms. We do, however, assume full responsibility for any inaccuracies or distortions in the presentations of the programs and apologize for any inadvertent errors.

The program descriptions follow these topics:

General introduction to the program (demographic data)
- Age, race of children involved
- Date and length of program
- Target population characteristics, recruitment

Assumptions underlying the program
- These draw primarily on the three assumptions: home deficit, critical period, family effects. Further, individual programs are sometimes based on assumptions specific to their purpose which have influenced the design or approach of the program; these are described.

Goals of the program
- For the children
- For the parents

How the program worked
- For the children
- For the parents

Distinctive features of the program

This is a brief summative description of how each program looked, particularly in terms of the factors mentioned in the Introduction.

Hypotheses tested by the program

What were the main questions that the program was interested in answering by the experimental manipulations?

Evaluation results

Table 1

List of Programs and Their Developers

in Order of Appearance

MCHP	Mother-Child Home Program (Levenstein)
PCDC	Houston Parent-Child Development Center (Lelar, Johnson)
	First Generation Mother Study (Barbrack at Demonstration and Research Center for Early Education--DARCEE)
	Second Generation Mother Study (Barbrack at DARCEE)
	Three Home Visiting Strategies (Barbrack at DARCEE)
	Infant Intervention Project (Forrester at DARCEE)
	Study of Intrafamily Diffusion Effects (Gray and Gilmer at DARCEE)
	Ypsilanti-Carnegie Infant Education Project (Lambie, Weikart, Bond)
ECSTPEP	Early Child Stimulation Through Parent Education Program (Gordon)
PCDC	New Orleans Parent-Child Development Center (Andrews, Bache, Blumenthal, Weiner)
PCDC	Birmingham Parent-Child Development Center (Lasater, Malone, Weisberg, Gilliom)
	Parent-Child Course (Rayder at Far West Laboratory)
	Mothers Training Program (Karnes)
HOPE	Home-Oriented Preschool Education (Appalachian Educational Laboratory)
	Early Training Project (Gray and Klaus)
SKIP	Special Kindergarten Intervention Program (Kingston and Radin)
	Ypsilanti Perry Preschool Program (Weikart)
	Ypsilanti Curriculum Demonstration Project (Weikart)
	Spanish Dame Bilingual School (Micotti and Santa Clara County Office of Education)
	Ypsilanti Early Education Program (Radin)
	Hawaii University Center for Research in Early Childhood Education (Adkins)
	Hawaii Program I
	Hawaii Program II
	Hawaii Program III

Table 1 continued

	Learning to Learn Program (Sprigle)
	Structured Language Program (Mann)
	Teaching Parents Teaching (Champagne and Goldman)
PATTP	Parents are Teachers Too Program (Boger)
	Project Early Push (Downey and U.S. Office of Education)
	Oakland Preschool Program (Waters and Oakland Unified School District)

THE MOTHER-CHILD HOME PROGRAM

Program Director: Phyllis Levenstein

The Mother-Child Home Program (part of the larger Verbal Interaction Project) was a home-based, preschool cognitive intervention program, first field-tested in 1967. It was a home-visit program for modeling for low-income mothers ways of interacting verbally with their child. Participation in the program began when the target child was two years old, and each mother/child pair was part of the program for two years of intervention. The families received a maximum of 46 home visits for seven months during each year of participation. The program was implemented solely with low-income families, since one assumption of the program was that low-income families would benefit from having a model for doing with their children what many middle-income families did on their own. Both black and white families have been involved. Originally, the program was instituted in three separate housing projects on Long Island, New York; a number of other organizations since then have replicated the Mother-Child Home Program in areas outside of Long Island.

To recruit families for the program, entire housing projects were approached. Letters were sent out explaining the program to the mothers, followed by door-to-door contact. Those mothers expressing interest were then visited by a program supervisor. The only eligibility requirements were that the family's income level qualify for low-income housing and that neither parent have an education higher than high school. No reimbursement was offered for participating, although the families kept the toy and book materials used in the home visits. Mothers who were willing to enroll their children in the program obviously were motivated in ways that unwilling mothers were not--a fact that reduced the generalizability of the results. However, the program plan did try to control a second source of difference in motivation by first having all participants in the program willing to participate and then assigning whole housing project groups to the experimental or control conditions.

Goals of the Program

For the children: The Mother-Child Home Program was aimed to better prepare low-income children for success in school by modifying their early experiences in ways that increased cognitive development. Verbal abilities were the area of particular concern. Low-income children were assumed to be especially vulnerable to educational disadvantage in verbal abilities, and this area of cognitive development was seen as crucial to school performance. The specific language development goal was to bring the children to a symbolic level of language use through an emphasis on labeling, categorizing, and concept-building.

For the parents: The program's goal was to train by example low-income mothers to assume the function of "cognitive socialization," that is, to develop their own verbal-cognitive curricula to use at home with their child. The aim was to build verbal interaction into the very fabric of each family's experience, so that it would become an integrated part of the mother/child relationship.

Assumptions

Low-income children were assumed to make inadequate use of public school education due to "dysfunctional" preschool preparation. Similarly, low-income homes do not completely prepare children for school, especially in language abilities. Thus, the program focused on improving children's language development. The best time to intervene in children's verbal development was thought to be at age two or three years, during the early stages of speech development.

Another assumption of this program was that more lasting changes would be produced if the cognitive enrichment program were embedded in the child's relationship with important family-figures, since the cognitive stimulation would be continued when the program ended. Permanent assignment of the toy and book materials to the family was a further method of reinforcing the effects of the program after the program's termination.

How the Program Worked

The intervention consisted of biweekly home visits to each of the mother/child pairs by trained "Toy Demonstrators." The visitors were either volunteer middle-class women or paid low-income women who were formerly mother participants in the program. The average length of time for a home visit was one-half hour. At the first visit, the weekly Verbal Interaction Stimulus Material (VISM), consisting of books and educational toys, was introduced. In play sessions, the visitor demonstrated to the mother verbal interaction techniques using the VISM. Each mother was encouraged to practice these techniques with her child during the week. At the second weekly visit, the techniques were reviewed.

The demonstrator's primary goal was to help the mother to assume gradually the roles of teacher of her own child and facilitator of her child's cognitive development. The overall curriculum goal for the children was to build concepts through verbal interactions with their mothers. These goals were approached through guiding mothers to utilize verbal interaction techniques shown by the visitor. The sequence of structured tasks introduced weekly stimulated verbal interaction between mothers and children by providing a basis for meaningful, interesting dialogue. The play tasks were introduced in a sequence based on developmental principles; they provided a focus for the program, ensured sustained efforts by the mothers, and guided the mother's involvement in educational activities with her child. The interaction techniques were modeled for the mothers by the demonstrators. These techniques were "operationalizations" of various verbal interaction variables, such as "naming your actions." The teaching methods primarily used with the mothers were modeling, and positive reinforcement. The methods were meant to be nondidactic and to encourage parent participation in the learning. The title of Toy Demonstrators was adopted to emphasize the nondidactic nature of the visits and to reduce any threatening aspects. The Toy Demonstrators were trained not to act as counselors. They tried to increase the mothers' self-confidence in their own skills.

The demonstrator's role as a colleague to the mother was more a goal than an immediate reality. The Toy Demonstrator was more active as teacher at the beginning of the home visit program than later. As the visits continued, she became gradually less initiating, aiming toward the mother's independence.

Distinctive Characteristics

The Mother-Child Home Program strongly emphasized the mother/child dyad, both in its theoretical base and in the design for the intervention. All intervention took place in the home, with both the mother and child present. The program statements emphasized that the mothers were considered to be the most important teachers, with the home visitors as colleagues. The parents had active roles in the program, which were quite structured by means of the concrete tasks presented weekly. The tasks focused the mothers' involvement in a sustained, sequential, structured series of activities. Mothers were given genuine involvement and responsibility in ways hypothesized to be educationally meaningful.

Main Hypotheses

The main hypothesis tested was that a rise would occur in both the general and verbal intelligence of low-income children exposed to home-based stimulation of verbal interaction in the mother-child dyad. A subsidiary hypothesis was that since the intervention was dependent primarily on the mother, the stimulation should continue beyond the end of the program, and intellectual gains should be maintained. Also, superior psychosocial behavior in school was predicted for program children.

It was also hypothesized that the intellectual gains should be greater for two-year-olds than for three-year-olds, because the younger children would be receiving intervention at an earlier stage of language development.

Results

The first evaluation of the Mother-Child Program was conducted in 1967-68. In each year of testing since then, there has been confirmation of the major hypothesis of the program with respect to a rise in general and verbal intelligence. The immediate cognitive effectiveness of the program has been demonstrated for each group of subjects receiving the intervention. Two-year-olds, however, have not done significantly better than three-year-olds on the test used in the evaluation.

In the 1967-68 evaluation, children were divided into an experimental group (E) and two comparison groups--one received no intervention of any kind (C2) and the other received home visits by social workers bringing gifts not meant to induce verbal interaction (C1). This second comparison group was included to test for the effects of the attention and gifts, independent of the cognitive curriculum of the treatment group. At pretesting on the Stanford-Binet and Cattell intelligence tests, E scored below C1 and C2, with C2 significantly superior to E. After one year of

intervention, E's general IQ score rose above both C groups, but the post-test difference was significant only between E and C1. Group E gained 17 points, to a mean score of 102; C2 gained 2 points, to 94. E's gain was significantly higher than gains made by either C group. On the PPVT, the same pattern emerged, with E moving from behind both C groups at pre-test to outscore both groups at post-test. Again, the difference was significant only for E and C1. E gained 12 points, C2 gained 4 points, and C1 lost 4 points. Although verbal interaction was the primary means used in the program to foster cognitive growth, the gains in verbal intelligence made by E were not as great as the gains in general intelligence.

The Toy Demonstrators did find "cognitively stimulating material" available to the children in the homes of all subject groups. This fact suggested that the materials themselves were not sufficient to stimulate cognitive development. The 1969-71 evaluation included a comparison group that received the VISM only, without training of the mothers. This group did not show comparable gains to the E groups, a result which corroborated the earlier conclusion about the inadequacy of materials alone. (This experimental group, however, did outgain control groups, suggesting that the particular materials had some influence.)

Mothers also were given the PPVT in 1967-68. No significant pre- or post-test differences were found between groups during the first year.

One-half of the original E group had no further contact with the program but was given follow-up tests 30 months after the program pre-testing. They retained a mean of 12.7 out of their original 17-point IQ gain. On the PPVT, they retained 14 points out of their original 15-point gain. The gains that were retained were statistically significant.

In the second year, it was decided that maximum benefits would be achieved if children participated in the Mother-Child Home Program for two years. This decision was based on the results of five children of the original E group who were given the home visits and VISM for a second year. At the end of that year, their general IQ scores had risen 24.8 points, 6 points beyond their 18-point gain after one year. Their PPVT scores had risen 20 points, compared to a gain of 9.6 after one year.

New treatment groups were formed, made up of new children and children from the original C1 group. A new comparison group was added, which received the VISM only. The immediate gains on the IQ tests were significant for all groups, including the VISM-only comparison group, although the E groups outgained the comparison group. All E groups gained at least 10 points. On the PPVT, statistically significant gains were made by the E groups, although the gains were lower than for IQ. The PPVT score of the comparison group fell 6 points.

One group of E children received a second year of the program. In this second year, they increased their mean IQ gain by 6 points, making a total gain of 17.2 points. The mean IQ score for the group was 108.6. On the PPVT, the group increased their gain to 17.6 points from their first-year gain of 5 points. Both these second-year gains were significant. (The

second-year program evaluation was probably affected by the introduction of nonprofessional women as the Toy Demonstrators. Slightly lower gains were expected to occur as a result.)

The third-year evaluation, conducted in 1970, again demonstrated the strong effectiveness of the program in producing substantial immediate gains in both general IQ and verbal test scores. Children in the program for one year showed a mean gain of 16 IQ points, to 107. Children in the program for two years showed a mean gain of 18 IQ points. Most of the rise in IQ scores was shown during the first year of intervention.

Data from treatment groups entering the program subsequent to 1970 showed IQ gains ranging from 14 to 22 points. Short-term socioemotional effects of the program also began to be measured by Toy Demonstrator ratings of children's home session behavior. (A measure was developed by program sponsors, called the Child's Behavior Traits.) Results for the 1971 experimental group indicated significant gains for program children in socioemotional competence.

Most mothers in the program reported improvement in their family verbal interactions. Mothers' comments were generally supportive of the program.

Longitudinal and follow-up results: There was a significant program effect on children's follow-up IQ scores. A positive linear relation was shown to hold between follow-up IQ and amount of treatment received. In general, children with two years of full treatment retained their significant IQ gains at least into first grade, while all other treated and untreated groups demonstrated IQ retention on a continuum dependent on their amount of exposure to the program.

Subjects receiving two years of full intervention maintained significant gains over pre-test scores, up to 20 months after intervention ended. Not only were the immediate post-test gains sizeable (an average of 1 percent gain in IQ), most of this gain was retained into public school. Significant differences were found in first grade between two-year treatment groups and untreated groups, in cognitive and socioemotional functioning.

The groups of children who had received less than two years of full treatment showed some diminishing of IQ gain; however, the groups generally retained a statistically significant level of IQ gain over their original pre-test scores, at each post-testing in public school through first grade (over two years after intervention had ended). One group of subjects who had received the full program for one year and a shortened second year (reduced number of VISM and visits) retained nearly all of their 19 point IQ gain in first grade; another group who had received one full year plus a second year of some VISM retained an average of 16 out of 19 IQ points. A group who had only one year of the intervention retained half their original 17 point gain, when tested in first grade. Another group of subjects who had received "nonstimulating" home visits for the first year and

then had a year of the full program maintained an IQ gain of 13 points into first grade. The different comparison groups of subjects did not show significant gains in general IQ over pre-test scores.

Ratings by classroom teachers of children's school psychosocial behavior favored experimental children over comparison children. Generally, the treatment groups were consistently rated above average in psychosocial behavior; there was evidence that children's scores fell on a continuum according to amount of treatment, similar to follow-up IQ scores.

Replications: As of December, 1972, nineteen organizations were involved in repeating the Mother-Child Program in other locations. Eight of the programs had reported first-year mean IQ change, which ranged from -2.4 to +23.8, with a mean of +11.0. The four programs reporting second-year gains showed a mean gain of 15.0 points. The program showing the greatest gain had the largest sample size, which suggested that the smaller gains may have been due to experimental variables rather than to problems in adapting the program to other locations.

Individual differences: Although the mean IQ score gains were uniformly high for experimental children, gains for individual children differed widely. An effort was made to identify variables associated with this group diversity. A group of program children was divided into High and Low Gainers. There was found to be a common pattern of verbally-related behavior in each of the two groups, High and Low. From the home visitors' reports on the children's observed behaviors, there emerged a set of behaviors--including asking and answering questions, initiating conversations, cooperation with the Toy Demonstrator, frequency of play with the toys--which High Gainers did much more than Low Gainers. It appeared that the variables the program was stressing, the verbal-interaction variables, were significant in the children's intellectual development. The children that weren't getting involved in the interaction, for whatever reason, did not increase their intellectual performance.

The Mother-Child Home Program was shown to be highly effective. The evaluation methods were comparatively strong: a large number of children were involved; control groups were maintained; a number of standardized tests were applied; longitudinal and follow-up studies were carried out; and relatively successful replications have been reported. One of the most valuable aspects of the program evaluation is that the design of the comparison group allowed the specification of some of the variables in parent involvement that seemed to be important. The VISM without the explicit involvement of the mother and child with the toy was not nearly as effective: home visits by a social worker were not as effective as visits by the Toy Demonstrators. The follow-up results also suggested that the full, active involvement of parents as teachers in their child's cognitive development may have special significance in retention of initial gains made under formal intervention programs.

HOUSTON PARENT-CHILD DEVELOPMENT CENTER

Program Directors: Dale L. Johnson, Hazel Leler, and Associates

In 1968 and 1969, 36 Parent-Child Centers were established in the United States by the Office of Economic Opportunity. The Parent-Child Centers provided educational programs for children, comprehensive health care for the families, and parent activities to increase parent effectiveness.[1] In 1970, four of these Centers were designated as research models in intervention for children under three years of age. Three have continued since 1971: the University of Houston Parent-Child Development Center, the Birmingham Parent-Child Development Center, and the New Orleans Parent-Child Development Center. Since its pilot phase, the Houston Center has operated for three years, 1971-74, and it is still in operation.

The program is designed to provide a better educational experience for Mexican-American children. Changes in low-income preschool-aged children are effected by promoting changes in parent/child interaction and parent teaching style, and by strengthening family functioning. Families enter the program when the target child is one year old and remain in the program for two years.

The target area served by the program consists of two low-income, Mexican-American neighborhoods or barrios. Most of the families involved speak Spanish as their first language. Door-to-door visits were made in the neighborhoods to recruit families. The program was described in a general way to families who met the three entrance criteria: a child under one year, an unemployed mother, and economic disadvantage. If a family was interested in joining, it was randomly assigned to the experimental group (the educational program plus community referral services and medical services or one of the comparison groups (no services or community and medical services only). A community worker was then assigned to the family to explain the program and the participation requirements.

Program Goals

For the children: The program is aimed to increase the children's intellectual development, to encourage the natural interest and curiosity of the young children in order to promote learning, and to enhance the children's self-esteem. The long-range goal is to improve the children's school performance and increase the realization of their potential in all areas.

---

[1] See Review and Summary of a National Survey of the Parent-Child Center Program by Joan Costello, Yale Child Study Center, (for O.E.O.), August, 1970.

For the parents: The general program goal is to strengthen the parents as effective educational agents in the growth of their child. The program is aimed at helping parents become aware of their ability to influence their child's performance and their importance in the child's development. Parents are offered ideas for improving their teaching skills and interaction patterns with their child and are encouraged to practice the new skills. A program goal is the development of home environments that will stimulate children's intellectual, social, and physical development.

Assumptions

A primary assumption of the intervention is that a relationship exists between parental behaviors and a child's functioning and school performance. Early family experiences are seen as important to all forms of a child's later development. Parents are considered to be the earliest and most intense socializing influence on a child. Parent/child interactions are an important source of learning for a child. Being an effective parent is considered to require knowledge and skills for optimal stimulation of a child's learning and development; low-income mothers are considered less likely than higher-income mothers to have access to this kind of knowledge. As a consequence, low-income children might be less well-prepared for school. Another factor involved in the school performance of bilingual low-income children is their lack of proficiency in English. A third factor considered potentially responsible is the school's lack of responsiveness to special needs of low-income and especially Spanish-speaking children. The Houston Center's program is focused on changing home-related variables, including parent behavior, and helping parents work with the schools, but changes in the schools are seen as also important.

The fact that the population is Mexican-American as well as low-income led the program planners to make some additional assumptions: (1) the fathers are probably heads of the households, and their support would be essential; (2) due to cultural and family patterns, mothers are more likely to remain at home, and a home-based program might thus be more acceptable to them.

The theoretical basis of the program curriculum is eclectic, drawing from the developmental theories of Piaget and Erickson, behaviorist theory, and from Robert White's work on competence. It was felt to be important to the long-term effectiveness of the program for parents and children to develop feelings of competence in their own abilities in learning situations. The program sponsors hope to increase the awareness by Mexican-American parents of their own abilities to influence their child's learning and intellectual development.

How the Program Works

Each family participates for two years. The two years of the program involve different activities. When the target child is one year old, the family is enrolled in the In-Home program. For a year, bilingual teachers trained in early childhood theory and practice make weekly home visits to the families in the experimental group. The goal of these visits is to help the mothers become more effective teachers of their own

child. It is expected that mothers will begin to feel more responsible for and capable of participating in their child's learning as a result of the home visits. Mothers are helped to develop their teaching skills, including how to assess their child's readiness for new learning, how to use household materials to help the child learn, and how to select and make toys appropriate for learning. Mothers are also helped to understand more about child development, e.g., why certain activities stimulate a child's development. Child-rearing methods are also discussed.

Program sponsors indicate that the present emphasis is on a sharing approach with the mothers rather than a training approach, which more nearly characterized the home visits at an earlier point in the program development. The sharing approach apparently places more emphasis on the parents' own knowledge and personal experiences with their child. Parents and staff are seen as working together and sharing knowledge to help the child. The mother is considered to be the principal teacher of her child, and the visiting teacher is an advisor/consultant to the mother. The teacher tries to keep her direct interaction with the child to a minimum. The home visitors use didactic techniques and modeling to a minimum, relying on reinforcement and suggestions. These latter methods are felt to be better for encouraging the mothers own ideas and increasing their sense of competence. The home educators both offer ideas to the mothers and draw ideas from them.

Each weekly session focuses on a different topic. During the first year of the project, the sessions were flexible, not based on predetermined topics or prepackaged in any way. A more structured set of 3 home sessions has been developed and is being used. Another change has been a shift in emphasis away from school-related terms such as "lesson" and "home assignment" and "home teacher". The program staff is shifting to the terms "session" (or topic), "home activity," and "home educator," apparently in order to express the special nature of the home teaching in contrast to more didactic school situations. The set of 3 sessions follow a structured, linear sequence. Each session has three aspects: the primary topic (e.g., a particular concept to be developed that week), an interaction session centered on a loan or gift toy, and a suggested activity for the mother to carry out during the week. (In the first year of the project's operation, a language lesson was included in each weekly sessions, but it was dropped.) The interaction aspect includes a mother/child interaction session during which the home educator model teaching behaviors for the mother to practice with her child. Now, however, direct modeling is avoided as too didactic and the mothers is encouraged to interact on her own. The home educator attempts to act as reinforcer and advisor rather than as an expert competing with the mother.

The curriculum with the materials includes a description of each toy and suggested activities for mothers to carry out with the toy. A schedule for loans and gifts of educational materials was set up. Mothers are presented a toy to give their child. While the child manipulates it, the mother is encouraged to discuss what the child is learning from the toy and what other uses the toy has for helping the child learn and enjoy learning. The mother is sometimes given a short description of ideas developed by other mothers and teachers on ways for using the toy.

Each mother is asked to collect data on her child's language, cognitive, motor, and social development, both to help the home educators determine the curriculum and to sensitize the mother to her child's level of development. Each mother is given a notebook in which to put her data. It also contains summaries of the weekly sessions and the toy description. It was assumed that these would increase the parents' participation and encourage them to feel responsible for their child's learning.

The first year of home visits was originally supplemented with four weekend workshops for groups of families at a residential retreat. These have been shifted to workshops held at the Center with the expectation that this will reduce costs, increase attendance, and encourage ties between the families and the Center. Groups of eight to twelve families are invited to one or two afternoon socials and three or four one-day center-based workshops (on a weekend). The fourth workshop may be a residential workshop away from the Center in a natural, recreational environment. One purpose of these workshops is to involve the father and older siblings, so that the entire family particpates.

Group interaction sessions are held in order to encourage workshop participants to examine more closely communication, decision-making, and role-relationships. Sometimes these are held in peer groups, fathers and mothers separately, and the children in age-groups. Sometimes parents meet together. At other times, the families meet in family units, and occasionally all meet together. Children's groups are engaged in activities related to the workshop theme, including creative art, nature hikes, and sports.

During a family's second year of participation in the program, mothers and children attend an In-Center program away from home. The children are enrolled in a preschool classroom in which the curriculum emphasizes conceptual, language, and self-concept development. While the children are in the preschool classrooms, the mothers attend group sessions. The mothers and children attend four mornings each week for eight months.

The mothers' curriculum has two aspects. Mothers participate in sessions on home management skills, such as nutrition, cooking, sewing, and also in sessions on child development which are aimed at increasing the mothers' sensitivity to their child and improving their own teaching skills. The home management skills are taught through lectures, discussions, demonstrations, and practice sessions. In relation to the child development sessions, program planners felt that during the first year of the project, there was too much emphasis on the educator as the "expert". Consequently, in these sessions as in the In-Home visits, the focus was changed to a sharing philosophy, with the mothers contributing from their own experience and knowledge and the educator contributing from her training and experience. Lectures were avoided and discussions, films, role-playing employed. Micro-teaching is valued as a tool. Each mother is video-taped interacting with her child with an educational toy. The mother views her own videotape and then it is viewed, with her permission, by other mothers. Emphasis is on positive feedback focusing on the mother's positive teaching techniques. Mothers visit the children's classroom with a specific goal selected by the mother and the child development

educator in mind, such as observing a certain behavior or teaching a specific concept to the child. After participating in the child's classroom for a morning, the mothers, the educator, and the teachers meet to evaluate the day and clarify what was happening.

Fathers and mothers are also invited to attend biweekly evening discussion meetings on topics of interest to parents, especially to the fathers such as budgeting or credit.

Bilingual language skills are emphasized for both parents and children. In relation to the children this emphasis takes several forms. When families are in their first year in the program (the In-Home year), the home educators discuss with the mothers ways they can stimulate the child's language. The mother is urged to interact with the child in the language in which she is most comfortable. In the second, In-Center year, language development and stimulation are again discussed with the mothers. The classroom teachers speak to the two-year old in his dominant language, since he is just beginning to master it. This provides a natural bilingual environment in the classroom since some children are spoken to in Spanish, some in English. The child hears and begins to grasp both languages.

Language instruction and practice also take several forms in relation to the mothers. During the first In-Home year, mothers who want English instruction are offered a weekly class in English at the Center. During the second In-Center year when the mothers attend the Center four mornings weekly, a half-hour English is offered daily to those mothers desiring it. In all adult group activities, including Family Workshop and In-Center discussion groups, the parents conduct most of their activities in Spanish, moving to English if they desire or to meet individual needs. An effort is made to include English terms and phrases in various areas of the curriculum, especially in the home management activities where mothers need to know English labels for foods and sewing materials when they shop.

Another part of the program for the families is referral to medical, educational, and welfare services. The community workers help make the families aware of services available in the community. Each target child is given a medical examination and follow-up.

A Parent Advisory Council elected by the parents meets monthly for program input on their needs, evaluation, and suggestions for change. The actual power held by the Council is limited to recommendations.

Distinctive Characteristics

The Houston Parent-Child Development Center involves parents in a number of ways. The In-Home participation focuses on helping parents learn new teaching skills. The home sessions are parent-centered, and mothers are encouraged to feel primarily responsible as their child's teacher. The increasing emphasis on the parent's own ideas would seem to futher strengthen the parent's role. Although the atmosphere is less didactic, the change decreases the level of explicit structuring of parent/child home interactions.

In the second year of the program professional teachers are given more responsibility for teaching the children, making parents partners with other teachers. It appears that the In-Center classes continue to encourage parents' home teaching efforts, although there is greater emphasis on general knowledge (e.g., of nutrition and child development), and concrete home tasks were not mentioned). The classes for the parents put them in a student role, but the teaching techniques used (such as role-playing, video-taping) require parents to participate actively. The new program emphasis seems to increase the importance of the parent's own knowledge, with professionals offering suggestions on how to best apply it. The Family Workshops are concerned with changing intra-family relationships and family attitudes. The different forms of parent participation vary in the level of parent responsibility, although all forms were designed to encourage active parent involvement. Parent participation is considered essential if the children in the program are to maintain the gains made during the intervention. The parents are considered responsible for learning new skills and attitudes so that the impact of the intervention on the children will be retained after the program ends. Parents, particularly the mother, are expected to provide the environmental force instigating and maintaining competent behavior by the child. In this sense, the program assigns a great deal of responsibility to the parents and offers active teaching of the skills considered necessary for this role.

The program involves a comprehensive plan for changing the home environment in which the Mexican-American children develops. The program design seems ambitious in its envisioned range of influence. The program planners are interested in strengthening the whole family structure in ways deemed beneficial to child development, and all the components are aimed at this goal and justified by the same assumptions.

Main Hypotheses

The main hypotheses being tested in the evaluation of this program are (1) children whose families are involved will improve in their intellectual performance; (2) mothers will improve in their teaching techniques; (3) the homes of the families involved will become better learning environments.

Results

Results, have been analyzed only for the first program year, 1971-72. In this year, a group of one-year-olds and their mothers were enrolled in the In-Home component; another group of two-year-olds and their parents received only the second-year, In-Center experience. The full plan of the program includes two control groups -- one group to receive the outreach community services, called the Services Control; the second control group is called the No Services Control. For the year 1971-72, there was only a Services Control group for comparison with the experimental group. (1972-73 was the first year with the full program design.) Fifty-three families

with one-year-olds were initially enrolled, and there was 35 control families with one-year-olds; 27 families with two-year-olds were enrolled, with 22 control families. Final data were collected on 34 experimental group families with one-year olds and 30 control families, and 17 experimental families with two-year-olds plus 17 controls. Although families were randomly assigned for the treatment groups, there has been a differential attrition rate between the experimental and control groups, both at the point when each family's exact participation was described and during the intervention.

During their first year in the program, the one-year-olds were tested with the Bayley Test -- the Mental and Psychomotor Development Indices. The post-test scores at the end of the year on the Mental Development Index indicated a significant difference in scores favoring the experimental children, 95.7 to 88.6. Only the experimental-group children had made a significant pre-post gain (10 points). The two-year-old group was tested with the Stanford-Binet at age three. The year-end Binet IQ scores significantly favored the experimental children, 97.9 to 88.2. Intelligence test scores on children under three years of age, particularly the Bayley Test, are not known as good predictors of a child's later school performance, so the relevance of these measures in terms of the children's later academic success in unclear. The two-year-olds were also tested with the Concept Familiarity Index (CFI), at the end of the In-Center program when they were age three. Their curriculum was partially based on Palmer's system of concepts, and the CFI was a measure of how well the children learned the concepts they were being taught. The experimental children were successful on 64 percent of the items, significantly higher than the 52 percent success of the control children

Mothers in the program were administered a measure of their teaching behavior. The MISS (Maternal Interaction in a Structured Situation) was given, which involves video-taping each mother teaching her child, using a set of standard toys. Only the mothers of the two-year-olds took the test at the end of the In-Center program year. On the Control dimension, the experimental mothers were significantly more autonomy-granting and less intruding. On the Affection dimension, experimental mothers were more often rated warm and less often rated neutral. The evaluation reports globally described the treatment mothers as smoother and more attuned to their children during the teaching sessions.

Caldwell's HOME Inventory was used to measure changes in the home environments of the families. The partially analyzed data showed no significant differences between treatment and control families for the first-year group. For the second-year group, the data showed a trend favoring the home environment of the experimental families, especially in "Maternal Involvement with the Child and "Provision of Appropriate Play Materials." On the Psychological Mindedness Scale, the experimental mothers significantly exceeded control mothers on one part, the Developmental Change measure. They were higher on the Behavior Shaping measure, but not significantly so.

It is premature to form conclusions about the effectiveness of this program, since even the first-year results have not been completely analyzed. The results at this point have been more substantial in the area of maternal teaching behavior and less substantial in the areas of maternal attitude change. The program was successful in increasing the cognitive development of the children. This pattern of program effects is consistent with the program's goal of making the parents able to carry on the intervention after the formal program ends. The changes being made in the program in the direction of more parent responsibility seem promising for future immediate and long-term program success. One question that remains is whether the wide range of parent participation strategies makes a program more effective or whether it dissipates the effectiveness of any one activity, especially the individual parent/teacher sessions of mother/child interaction.

EDUCATIONAL INTERVENTION IN THE HOME AND PARAPROFESSIONAL CAREER DEVELOPMENT

Program Directors: C. R. Barbrack and B. Horton: DARCEE

Barbrack and Horton, at DARCEE,[1] conducted a series of studies investigating ways to improve the educability of young children from low-income homes and modify the home environment to enhance and sustain children's long term intellectual growth. Several different home-based mother-training programs were compared for cost and effectiveness. Of particular interest was the "vertical diffusion effect" which appeared in Gray's Early Training Project (pp. 105-110), which suggested that mother-training programs benefited younger siblings of target children.

Children in the programs came from low-income areas and housing projects in south central Tennessee. In recruiting, letters describing the program were sent out to eligible families. These letters were followed up by a home visitor presentation to the eligible mothers. Interested mothers were then enrolled. No money was paid to the mothers, although some of the materials such as books and toys were left with the families for the duration of the program. In some cases, Head Start program families were used as the subject population, recruiting from within an already-motivated, involved group of parents.

Program Goals

For the children: The program directors sought to increase the educability of the low-income children. This included greater competence in the areas of language and concepts, knowledge about how to learn, an improved self-concept, and more positive attitudes toward learning.

For the parents: Each mother was expected to take on two new roles: teacher of her own child and change agent in improving the lifestyle of her whole family. Mothers were trained in specific teaching techniques, and the program goal was for mothers to use these techniques on their own at home. It was also hoped that mothers would increase their ability to control and order the home environment in ways beneficial to child development, e.g., provide structure, organize learning opportunities for the child, and increase verbal interaction. As a result of their participation, it was expected that mothers would develop new attitudes, including a better self-concept, more independence, and an ability to delay gratification.

---

[1] Darcee refers to the Demonstration and Research Center for Early Education, Nashville, Tennessee. This Center has been actively involved in research on home intervention programs since the late 1960's. A number of the DARCEE projects are included in this review.

Assumptions

The program sponsors believed that low-income children do poorly in public school because they lack two basic skills necessary for academic success: competence in using language and knowing how to learn. The low-income home was assumed to inadequately prepare children in these skills. The environment of the home did not provide sufficient adult/child verbal interaction, nor was the child in the home encouraged to explore. Low-income parents had to concentrate on struggling to survive and consequently were likely to feel powerless, to lack self-respect, and to be unaware of their role in enhancing their child's development. Low-income children thus learn less than do middle income children from their environment and do not develop good strategies for or attitudes toward learning.

Parent training was emphasized on the assumption that the home environment and parents were crucial in a child's emotional and intellectual development. By directly involving the parents, programs would be more likely to produce lasting changes in the educational potential of the children, both target children and siblings.

First Generation Mother Study

The first project, First Generation Mother Study, operated in 1968-1969. Of particular interest to this study was the "vertical diffusion effect" or benefits for younger siblings in intervention by home visits. Four mothers who participated in an earlier program were trained as home visitors. Twelve urban black families were selected from a housing project to serve as the study sample. Target children ranged in age from three to five years. A comparison group was formed of twelve black children from the same low-income housing project. It was not stated whether housing project families were randomly assigned to treatment groups.

How the Program Worked

Each mother/child pair received forty weeks of weekly, one hour home visits. No group classes were offered for the children. The home visits were intended to train mothers to take on teaching responsibilities at home and to consider themselves as effective change agents in improving their family's life style.

The two roles for mothers that served as teaching goals (mother as teacher and mother as change agent) were the same roles the home visitor assumed with respect to the mothers. The visitor guided the mothers in gradually increasing participation in their child's educational activities. Mothers began as observers of the interaction between visitor and child and eventually were expected to take over complete teaching responsibility.

In case studies of home visits, the home visitor seemed to maintain active participation in the teaching of the child. There was quite a bit of direct interacting between the child and the home visitor. The amount of teaching responsibility assumed by the mother depended on the individual mother -- how fast she learned the teaching techniques, how shy she was about taking over from the home visitor. Home visitors were

trained not to rush mothers into positions of responsibility for the teaching. Thus, although the mother was to be the main focus of the visitor's efforts and to be the primary teacher of her own child, these goals were not always reached in individual sessions or in the set of sessions for some mothers. The primary teaching techniques that the home visitors were expected to use were modeling and demonstration; the case studies indicated, however, that the visitors assumed a more advisory role, particularly in the early home visits.

Although there was not a preplanned series of specific tasks that functioned as the curriculum of the home visits for each mother/child pair, the home visitor had lessons in mind when she came and used materials around the home to demonstrate the lessons. Mothers were assigned concrete tasks to carry out during the week only after they had moved beyond the initial, more dependent observer role. They were, however, encouraged to practice the activities shown during the home visits and to generally do more interacting with and teaching of their child.

Hypothesis

The main hypothesis was that children in the Home Visitor group would show significant gains in intellectual, verbal and conceptual performance and that they would be superior to children in the comparison group at post-test.

Results

Neither the Home Visitor group nor the comparison group showed significant pre-post gains on the Stanford-Binet or the PPVT. On the DARCEE Concept Test, the Home Visitor group made significant gains on all three subtests. When the Home Visitor group was compared with the comparison group, the Home Visitor group was superior on the Binet and the PPVT, and the differences neared significance.

Three reasons were suggested for the unexpected poor showing by the Home Visitor group. First, the home visitors were newly-trained paraprofessionals who gradually gained confidence in their roles and only gradually used all their skills in working with the mothers; second, the intervention was very short; third, the sample size was quite small. The lack of substantial differences between the Home Visitor and comparison groups might also have been related to variables in the treatment itself. The home visits were not focused through the use of a series of specific tasks which the mothers were to practice during the week. The inexperience of the home visitors might have increased the amount of direct teaching of the children done by the visitors and thus decreased the amount of parent training and parental assumption of the teaching role. Inexperience also might have reduced the effectiveness of the home visitors in teaching the children. Finally, a longer program operation and more experienced home visitors might have increased the demonstrated gains for the participating families. Despite the relative ineffectiveness of the treatment in producing significant changes in the children, the home visitors themselves showed positive changes in their attitudes and teaching skills.

Second Generation Mother Study

This study compared the effectiveness of three different home-visiting strategies which focused on mothers. The study was concerned with comparing the costs and benefits of the different intervention strategies. The study operated for ten months in 1968-1969. Fifty urban black mothers and their children were involved, all from the same low-income housing project in Nashville, Tennessee. The children ranged from four to six years in age.

How the Program Worked

Four groups were formed, three treatment groups and a comparison group. In Group I, mothers were visited by a professionally trained and experienced home visitor. Seventeen mother/child pairs were involved. The children had participated for nine mothers previously as younger siblings of target children in the earlier First Generation Mother Study. They had been present during the earlier home visitation and were involved in ther mothers' training activities. These children were the target children in the Second Generation Mother Study.

In the second group, called MIT I, (Mother in Training I), families were visited by inexperienced paraprofessional home visitors who were supervised by a professionally trained teacher. There were twelve children in this group, who had all participated in an earlier home visitor study.

In the third group, MIT II, mothers were visited in inexperienced paraprofessional home visitors who were suprevised by other experienced paraprofessionals (ex-home visitors). Ten newly recruited families were the subject population. A comparison group of eleven black children was formed at the end of the program

Mother/child pairs in the three experimental groups received one hour weekly home visits. The home visitors received similar training, regardless of their level of experience and education. The content of the home visits was designed to be comparable for the three groups. The approach to parent training and the goals described under the First Generation Mother Study also applied to these three home visit projects.

Main Hypotheses

The question of interest was whether using non-professional home visitors and/or supervisors, which would be less expensive and would offer career opportunities to low-income women, was as effective as using professionals. The criterion of effectiveness was ability to produce changes in the intellectual performance of the children whose mothers received the home visits.

Results

The three treatment groups were substantially but not significantly higher than the comparison group on the Stanford-Binet at pretesting. During the program, the children in Group I and MIT I declined slightly, MIT II children gained slightly. No group made a statistically significant gain. There were no significant differences among the groups at post-testing, although the treatment groups were still superior to the comparison group. The same pattern occurred on the PPVT, with group I and MIT I declining while MIT II gained 11.3 points. There were no significant differences among the three experimental groups, but all three were significantly superior to the comparison group. The home-visiting projects in general stemmed the relative decline in intellectual functioning shown by the untreated comparison group. Further, children in group MIT II made consistent, if not significant, gains.

On the DARCEE Concept Test, which measured mastery of the program content, children in both MIT I and MIT II gained significantly on the matching, recognition, and identification subtests. Al three home-visitor groups were significantly superior to the comparison groups on the recognition and identification subtests, and MIT II was also significantly superior to the comparison group on matching. These conceptual developments were reflected only slightly in the children's Binet and PPVT scores.

On the Maternal Teaching Style Instrument, all the home-visited mothers made significant positive changes on "cue labeling," "negative feedback," and proportion of positive feedback." MIT II mothers significantly decreased in proportion of total feedback. No group of experimental mothers was consistently superior.

Across the measures, MIT II was the superior group. This advantage was attributed by program planners to the fact that it was the most recently developed and carefully planned DARCEE program. The study indicated that paraprofessional home visitors could be as effective as professionals, and that paraprofessional supervision was potentially as effective as professional supervision. This conclusion has obvious implications for program cost and for opening up career opportunities for black, low-income women.

Three Home Visiting Strategies

Another study compared the effectiveness of three home visiting strategies in changing both mothers and preschool children. Seventy-two mothers and their six-year-old children were involved. All were black, and the children had all earlier been enrolled in an eight-week summer Head Start program. Five groups were formed, drawn from three different locations. T1, T3, and T4 came from one community and were randomly assigned. T2 was formed from another community and T4 from a third. The groups were as follows:

T1 Mother-Involved Cognitive: Home visits were made to the mothers, and the mother's participation in the visit was actively solicited. Mothers were shown how to work with their child on materials that supplemented the child's first-grade curriculum. The mother/child activities that were encouraged were aimed at improving the child's cognitive development.

T2 Child-centered Cognitive: The home visitors worked only with the children, with the same lesson content as T1.

T3 Mother-Involved Physical Training: Home visits were made, and the mother's involvement was actively solicited. The content of the home visit lessons emphasized sensory-motor skills. Mothers were shown how to work with their child on physical exercises.

Mothers in these three experimental groups were told that the teaching they did with their child would help him build on his Head Start preschool experience and do better in school. Mothers in T1, T2, and T3 received thirty weeks of home visits.

T4 was a local control group.

T5 was a "distal" control group (i.e., a control group formed in a different geographical area.

The experimental design isolated two possible factors influencing program effectiveness: One, whether or not mother involvement in home lessons was actively solicited (T1 versus T2); two, whether the curriculum was cognitively oriented and verbal or focused on physical exercises (T1 and T2 versus T3). The study also asked whether treatment effects spread within a community to nontreated children (T4 versus T5).

Results

On the Stanford-Binet, all groups but T5 made gains from pre- to post-testing. T2 gained the most (4.66 points versus 1.29 points for T1 and 1.05 points for T3), but there were no significant differences among the group gains. On the Metropolitan Achievement Test, group T2 was significantly superior to all other groups by almost twenty points. T1 and T4 were significantly superior to the distal control group (T5).

Measures were taken of both verbal and nonverbal Maternal Teaching Behaviors. For the verbal categories, only two showed significant differences. Mothers in group T2 were lower than all other groups on Question Responses, and T1 mothers were superior to T2, T3, and T5 on Information Responses. In nonverbal categories, T1 mothers were significantly superior to all other groups; and all other groups were significantly superior to T2 mothers on Non-Verbal positive Feedback. The mother-involvement groups were superior to T2 and T4 on Overall Number of Nonverbal Responses shown by the mothers. T2 was the lowest, significantly lower than T4 and T5. On overall Number of Positive Feedback Responses, mothers of group T1 were significantly superior to all other groups; T3 mothers were significantly superior to group T5

The pattern of results did not uniformly favor one of the strategies. No one group made large gains in IQ. Barbrack attributed this to the brief duration of the program and to the initially low average IQ score for the children (average IQ = 80). This low average IQ was hypothesized as diminishing the program's chances for making large gains. The child-centered home intervention (T2) was the most effective in terms of increasing the achievement potential of the children immediately after the program. The achievement gains of children in T2, however, were not matched by gains in IQ that were significantly greater than gains made by the other groups. Barbrack suggested three factors that might have been responsible for the lack of superiority for the children in the mother-involved groups. One, the home visitors reported that T2 mothers worked with their children between visits, in the same ways being encouraged in the mother-involvement groups. Two, the mothers in T1 were reported to be hesitant in assuming a formal teaching role, which would have diminished the effectiveness of the home visits. Three, the home visit program got off to a slow start due to the relative inexperience of the community paraprofessional home visitors, as well as to the parents' reticence.

If change in maternal behavior was considered the most important result, home intervention that involved the mothers actively was apparently a more effective strategy. There were significant differences on only five out of fifteen categories of maternal behavior, but T1 was superior to T2 on four of these. Maternal behavior change could be considered crucial as a way of sustaining the children's growth after the intervention ended.

On the question of curriculum content, T1 versus T3, T1 seemed to be more effective, as measured by the Metropolitan Achievement Test and the maternal teaching variables. Program sponsors felt that the mothers did not take seriously the physical training curriculum, i.e., they did not believe that it would increase their child's school performance. Sponsors concluded that program content probably was not a crucial factor, assuming different contents are taken equally seriously by mothers. It is also true, however, that T3 lacked the emphasis of T1 on mother/child verbal interaction, and this difference might have been important.

The results from the program suggest the variables in an intervention program which might be crucial. First of all, home intervention in which mothers are actively involved was shown to be the more potent way of changing maternal behavior and increasing children's performance on selected tests. (No follow-up studies were done, but it might be predicted that the children in T1 would sustain their gains longer than the children in T2, due to continued active parental support.) Second, the mother-involvement programs did not use a set of specific tasks as home assignments to guide and insure mother-child interaction. This might have been a factor diminishing the chances of more substantial gains. Finally, all treatment groups showed gains on tests of the children's intellectual performance. Most classroom preschool intervention programs without parent training also are able to show some immediate intellectual effects on the children, regardless of content. Home intervention seemed to have at least the same general positive effect on immediate cognitive performance of children in the program.

INTERVENTION STUDY WITH MOTHERS AND INFANTS

Program Sponsor: B. Forrester: DARCEE

The DARCEE curriculum model and home visitor techniques[1] were used in a one-year home visit program for low-income mothers and their infants. Professional home visitors worked with and through the mothers to promote the infants' development and increase their educational potential. Twenty mothers and their seven-to-nine-month-old children participated in the study. Each mother/child pair received 24 weekly one-hour visits from April to November, 1970. The home visitors were black professional women. The families were recruited from recommendations by county public health officials. The home visitor contacted eligible families and explained the program, its purpose, the testing involved, and the time commitment required. An experimental group was made up from this pool. A control group of 20 other mother/infant pairs of similar background was formed. Program reports did not indicate if there was random assignment to the experimental and control groups. Both black and white families participated.

Program Goals

For the children: Program objectives for the infants were set in five areas of development: in gross motor development, the goal was control of the large muscles used in walking, standing, etc.; in fine motor development, the objectives were skill in using hands and fingers and eye-hand coordination; in cognitive development, the goal was the development of "processes involved in knowing and understanding the world", e.g., attention, discrimination, exploration; in language development, the objective was developing the ability to hear, comprehend, and produce speech; in personal-social development, the program goals were a positive self-image and warm social relationships between the infant and adults.

For the mother: The program attempted to make the mother a more effective teacher and "change agent" in her child's life. Increased teaching effectiveness involved learning new teaching techniques such as positive reinforcement, improving discipline, and increasing the amount of verbal interaction upon her child. As effective change agent, the mother was expected to increase her awareness of her child's behavior and development and increase her awareness of her own role in observing the child, assessing his needs, and stimulating and facilitating his development through appropriate activities. It was expected that mothers would learn to select and develop play materials.

---

[1] See pages 33-41 and pages 45-50 for description of the DARCEE home visit model.

Assumptions

The principal assumption of the program was that both the home environment and "caretaker" behavior had a strong influence in the child's physical, emotional, social, and intellectual development. Certain conditions in the child's early environment were assumed to foster development. Warm, loving, interpersonal relationships were assumed to be a crucial foundation for development. Frequent contact with people and physical handling were conditions considered important for development. Frequent and stable contact of the mother and infant was assumed crucial in the child's development, since the quality and quantity of mother/child interaction were assumed to be positively related to infant performance. Conditions in the external environment assumed to stimulate learning were consistency, routine and structure, variety, modulated visual and audio stimulation, and appropriate toys and objects to be manipulated. Freedom to move and explore and verbal stimulation from an adequate speech model were considered important elements of a stimulating environment.

No explicit assumptions were made about low-income homes. Since low-income families were the target of the intervention, it was apparently assumed that low-income mothers were less likely to be aware of optimum home conditions and their importance to a child's development and less likely to feel responsible as teacher and change agent for their child.

How the Program Worked

The home visitors worked with each mother/child pair individually at home. The home visitor's efforts were aimed primarily at the mother; the home visitor functioned as teacher and change agent for the mother.

The home visits were not organized as a predetermined sequence of lessons, although the home visitor planned activities each week for the mother and infant to do during the visit. The activities were the focus of the visit. During the first visits, the home visitor assessed the existing situation--the mother's level of understanding of her child and his development, the infant's level of development, and the mother's own teaching style. The home visitor then functioned in a number of roles in order to increase the mother's effectiveness. The home visitor showed or demonstrated teaching behaviors that were desirable. The home visitor acted as a model of how she wanted the mother to act and reinforced positive behaviors of the mother. In particular, the visitor provided a model of adequate language. The home visits were aimed at improving the mother's teaching skills. Verbal interaction skills were demonstrated, as were positive reinforcement and discipline techniques. The home visitor watched the mother in the home activities and suggested changes and new ideas. The home visits were not primarily aimed, however, at the acquisition of a set of specific techniques. Rather, the home visits were planned to help mothers be aware of their child's behavior and development and provide a home environment that facilitated growth. These conditions were considered to be a foundation for more efficient teaching and management of the infant. Directed observation was the first step in the development of the mother's awareness of her infant. The home visitor

guided the mother in observations of her infant's behavior and growth. The home visitor also pointed out to the mother ways of stimulating development. For example, the home visitor discussed how daily routines, such as bathing, had cognitive and social aspects and could be used as learning situations. The mother was encouraged to provide stimulation through activities, toys, verbal input, and freedom to explore. The mothers learned to select and present toys to her infant.

The mother's level of responsibility increased during the home visits. Ideally, by the end of the home visits the mother was to be independent of the home visitor, able to initiate and carry out activities and observations on her own. Home activities between the visits were encouraged, with more emphasis on home activities during the middle and end of the home visit program. Specific assignments were not mentioned. The home visitor acted as teacher and advisor and model for the mother. Although the mother's own teaching style was acknowledged to be the basis of the teaching, the home visitor did function to offer the mother improved techniques and new knowledge which was felt to be desirable. How close the mother and home visitor came to being partners seemed to depend on how successful the program was in getting the mother to take on the roles of teacher and change agent.

Distinctive Characteristics

The program focused totally on the home environment and the parent/child relationship, because these were considered crucial factors in an infant's development. The home visitors offered mothers concrete suggestions about how to improve their teaching, their relationship with their child, and their home environment. The home visitors also encouraged mothers to be active in their child's learning as facilitators and change agents. Modeling was the main training technique, along with direct suggestion. The home visitors seemed to function as experts advising the mothers, at least during the initial visits. The goal of independence of mothers from the home visitor's guidance would seem to depend on a fairly rapid transition from the expert/student relationship to a partnership.

Main Hypotheses

Children who received the home visits were expected to score significantly higher than no treatment children on measures of mental development.

Results

On the three measures used--Griffiths Mental Development Scale, the Bayley Scales of Mental and Motor Development, and the Uzgiris-Hunt Infant Psychological Development Scale -- the experimental children significantly outscored the control children at post-testing.

Each mother wrote a short evaluation titled "What This Program Meant to Me." The evaluations were quite favorable to the program and indicated that mothers felt that the program influenced the total home environment--other children and the father as well as the mother and target infant.

The evaluation results supported the hypothesis that the home visits would significantly increase infants' mental growth. Other kinds of data would be desirable. A greater range of measures on the children's growth would be optimal; the durability and nature of infant changes would also be of interest, but would require long-term follow-up and supportive data. The program attempted to help low-income mothers become change agents, i.e., conscious arrangers of the home environment and their own behavior in order to facilitate learning. It would seem particularly important to have some idea of whether mothers were doing their own assessment and were implementing their own ideas. This kind of behavior could potentially be quite supportive for a child's development and have long-term benefits educationally.

INTERVENTION WITH MOTHERS AND YOUNG CHILDREN: A STUDY OF INTRAFAMILY EFFECTS

Program Directors: Susan Gray, Barbara Gilmer, James O. Miller: DARCEE

Gray, Gilmer, and Miller, working at DARCEE[1], carried out an intervention study designed to investigate the effects of different kinds of parent involvement on the development of preschool children and their younger siblings. Gray had earlier initiated the Early Training Project (see pp. 105-110) in which an unexpected "vertical diffusion effect" appeared in the evaluation results. The younger siblings of those children who had been in the project the longest scored significantly higher (13 points) on the Stanford-Binet than the siblings of the untreated group. On the hypothesis that the diffusion effects came from the home visit component of the Early Training Project, Gray, Gilmer, and Miller implemented their study of mother involvement to investigate the diffusion effect more systematically.

The study operated from 1966-1969. The target children involved in the study were three- and four-year-olds; all were black. The children all had younger siblings at least 18 months old at the start of the study. The 80 families in the study were recruited from the same low-income housing project in urban Tennessee.

Program Goals

For the target children: The stated program goal was to "foster socialization for competence." It was hoped that the children would learn how better to order their world, deal successfully with it, and feel competent about their own abilities. These changes would be complemented by increases in the children's intellectual development, including language usage, concept formation, and cognitive functioning.

For the younger siblings: The program goal was to increase the conceptual and intellectual development of the younger children by means of their mothers' contact with the program.

For the parents: Mothers were encouraged to change their patterns of interacting with their children to include more verbal interaction and more interaction centered on educational activities. It was hoped that mothers would begin to think of themselves as change agents both in their child's education and in the family's home environment.

Assumptions

Low-income families were the target population because of the relatively low achievement of many low-income children in public school. It was assumed that the home environment is crucial to a child's intellectual

[1]DARCEE is the Demonstration and Research Center for Early Education; Nashville, Tennessee.

development and that the low-income home environment is deficient in certain ways that are related to children's school performance. Low-income homes do not foster a sense of competence in children, and a sense of personal competence was considered essential by program sponsors to educational success. Low-income homes were also assumed to inadequately stimulate intellectual development, because of a lack of variety and order in environmental stimulation, lack of opportunity to use language, and lack of encouragement of exploratory behavior.

The involvement of parents was considered important if an intervention program had the goal of permanent changes in the home. Also, by including parents, the effect of the intervention might benefit offspring other than the target children.

How the Program Worked

Three methods of intervening with low-income families were compared, all with the goal of "promoting the cognitive development and competency" of young children from low-income homes. Group I was the Maximum Impact Group; Group II was the Curriculum Group; Group III was the Home Visitor Group.

Group I mothers came with their child to the preschool center, where both attended classes. Mothers received training once a week; the child attended preschool five days a week.

The classroom program for the children in Group I had a structured, developmental curriculum. The overriding goal for the children was social competency, which included emphases on the children's coping abilities, on their abilities to order their environment, and on teacher reinforcement of children's successes.

The mothers received carefully supervised training. They were first involved in observation of the children in the classroom. The observation was directed and elaborated by a supervisor. Mothers learned to diagnose and make predictions about what they were seeing in the classroom. The mothers were trained in teaching techniques through role-playing and modeling. They then participated as aides to the classroom teachers, using their new teaching skills. During the later part of the training, home teaching was emphasized. Home visitors called on parents to reinforce and stimulate the mother's use of teaching skills in the home. After the training, the mothers continued to meet in small group meetings in the homes to discuss their changes. The training program was geared toward self-help.

The program worked for various types of change in the mothers. One type was change in the pattern of mother/child interaction. The teacher provided the mothers with the skills and resources for stimulating their child intellectually. The methods of teaching the mothers these skills were primarily direct didactic teaching and demonstration. It was hoped that the new patterns of mother/child interactions would provide a better "support system" for the child's classroom learning. A second kind of change concerned methods of motivation: mothers were encouraged to

increase their positive reinforcement of positive behavior and to be more supportive of the continuing development of their child. A third type was change in the mothers' "personal style," specifically, an improved self-image and the development of home management skills. ("Home management skills" seemed to refer to the ability to create a home environment that offered the child an ordered, systematic, stimulating learning situation.) Finally, the program encouraged mothers to prepare more nutritional meals and to be concerned with better health for the whole family. Overall, the one-word goal for the mothers was "planfulness," in the mothers' own lives and in the lives of their children and families.

Group II was the Curriculum Group. The target children were enrolled in the same preschool program as Group I children, and their mothers were not involved. Groups I and II received treatment for two years.

Group III was the Home Visitor Group. Each mother/child pair in this group was visited once a week. The visiting teacher worked with the mother on teaching techniques, using the target-age child to demonstrate techniques and procedures from the preschool. The home curriculum was highly concrete and specific. Activities were planned by the home visitors in accordance with the general program goals. Assignments were left for the mothers to complete during the week. The first group of children received home visits for one year. Their younger siblings formed the second year's treatment group.

Comparison children attended year-round non-DARCEE preschool programs.

Distinctive Characteristics

The mothers in the Maximum Impact (I) and Home Visitor (III) Groups had intensive involvement in the program. Both sets of mothers were considered responsible for gradually becoming teachers of their own child Both sets received highly structured lessons based on the DARCEE classroom curriculum. The program for these mothers was concrete, specific in its objectives, carefully-planned and sequenced. There were differences between the treatments received by the two groups of mothers. In Group I, both mothers and children came to the center. Although it was emphasized to the mothers that they should consider themselves as a primary teacher of their child, the children were also taught by a professional classroom teacher. With Group III, all the intervention took place in the homes, and the mothers were solely responsible for teaching their children. The home teaching efforts of Group III mothers were the only focus; it was left up to the mothers in Group III to undertake teaching at home, and home interactions were not structured by concrete tasks. On the other hand, the mothers in Group I seemed to receive more intensive training and more guidance in a range of situations and training experiences.

Hypotheses

It was predicted that the mothers who were trained to work with their older children (the target children) would also change their interactions

with their younger children, although not specifically encouraged to do so. As a result, the intelligence scores and conceptual development of the younger siblings of Groups I and III were predicted to increase (the vertical diffusion effect) when compared to Group II siblings. Group I target-aged children were predicted to be superior to Group III; the home visit program was not predicted to have as great an effect on the older children.

Results

After one year of the intervention, all three groups had made significant gains on the Stanford-Binet: Group I had gained 11 points; Group II had gained 16 points; and Group III had gained 4 points. The posttest averages of Groups I and II were significantly superior to that of Group III and the comparison group. Group III was not significantly different from the comparison group. The poor showing of the Home Visitor Group III hypothesized as possibly due to the subjects being a year older than children in the other two groups. Group III children were the only ones not receiving the DARCEE preschool classes.

Groups I and II received two years of treatment. At the end of that second year, Group I children had continued to gain; Group II children significantly declined in IQ score; and Group III children, with no treatment during that year, stayed at about the same level with a slightly increased score. The children whose mothers were involved showed greater continuing effects of the intervention.

On the PPVT, all three treatment groups made significant gains after one year of treatment. Groups I and II continued to score significantly higher than their pre-test scores after two years of treatment.

After one year of treatment, a new Home Visitor II Group was formed of three- and four-year-olds, who received two years of the home visits. Although their final post-test scores were not as high as those of Groups I and II, there were no longer significant differences in the performance of children in Groups I and II who had attended two years of DARCEE preschool, with or without parent involvement and children with two years of home visits.

The younger siblings were tested after their older siblings had had two years of treatment. Siblings of the groups with maternal involvement, the Maximum Impact Group (I) and the Home Visitor II Group, were superior on the Stanford-Binet. The younger siblings of the Home Visitor II Group and Group I also did significantly better on all three subtests of the Basic Concept Test of the DARCEE curriculum. There were no significant differences between the siblings of children in Group I and the Home Visitor II Group, nor between the siblings of the Curriculum and Comparison Groups.

In terms of within-family performance patterns, younger siblings of Home Visitor I scored significantly higher than their older siblings after one year of treatment. After one year, there was no difference between the

target children of Groups I and II and their younger siblings. After two years of treatment, the target children in Groups I and II were significantly superior. These results suggest that the mothers in the groups with parent involvement were changing their home behavior in ways that benefited younger, non-target children.

The program sponsors noted that the parents who participated in the program made improvements in their life styles. Some mothers went on to finish high school; others went into training courses. Parents showed more interest and participation in community affairs, and mothers initiated more social contacts. These changes were noted but not systematically measured.

It was concluded that mother involvement in intervention programs would not produce greater immediate effects beyond those of child-centered programs. The Curriculum Group III, with no mother involvement, scored as well as Groups I and II. The one-year results did not favor any one of the intervention strategies. There was, however, some suggestion in the two-year results of more lasting effects for the children in the mother-involved programs. Long-term follow-up would be essential for examining this trend. The positive effects of parent training on continuing support for children is a potentially important rationale for this kind of intervention. The programs with mother involvement did benefit younger siblings more than the child-centered program.

The differences in effectiveness between Groups I and III--individual home visits versus mother training in a group outside the homes--did not consistently favor either group. If change in the mother's style of interacting with her child was the primary goal of the intervention, then the home visitor program effected changes similar to the more expensive, combined preschool/parent-training program, as indicated by the performance of both target children and younger siblings in the two groups. This study was primarily interested in diffusion effects in general and not in comparing Groups I and III, except in terms of economics. Parent behavior measures and further long-term results might permit further differentiation of the two strategies of parent involvement.

YPSILANTI-CARNEGIE INFANT EDUCATION PROJECT

Program Directors: D. Z. Lambie, J. T. Bond, D. P. Weikart

The Ypsilanti-Carnegie Infant Education Project began operation in 1968. The Project aimed at increasing the development of low-income children by means of home visits to mother/child pairs and mother training. This approach-- home-based mother-training--had been tested earlier in the Ypsilanti Home Teaching Project (1966). In this earlier Project, teachers were sent into the homes of low-income families to (a) tutor the four-year-old preschool children in areas considered as necessary foundations for cognitive growth, and (b) interact with the mothers, training them in language, teaching and child management skills. Mothers functioned as observers of the home visitors (the teachers), as teaching assistants, and eventually as teachers themselves, when their skills and confidence increased. Their training enabled them to undertake daily implementation of the home teaching program. The mothers became actively involved in the home education of their children. The content of the home visits did not follow rigid sequence of "packaged" lessons, although a set of cognitive goals had been identified which guided the tutoring for each child. The teacher identified what each child needed and what sequence of lessons would be optimal. Home assignments for the mothers were not uniformly given, but depended upon the mother's progress and willingness to assume responsibility for the teaching.

In the immediate results from the evaluation, the experimental group of four-year-olds showed significantly greater intellectual growth during the few months of the program, and there was a significant difference between post-test scores of the experimental and control groups on the Stanford-Binet. On the PPVT (used to measure language growth), the experimental group made greater gains, but the gains were not statistically significant.

The Ypsilanti Infant Education Project continued this plan of intervention, with some changes. The children involved were younger--under one year on entrance. The focus of the home visits shifted from direct tutoring of the children toward working with the mothers, and away from teacher-determined lesson content and pre-specified goals toward implementation of educational goals set by the mothers. The program was aimed at facilitating children's cognitive development by facilitating the mothers' growth as teachers. The program helped mothers provide opportunities for their infant to actively engage his environment and helped the mothers learn to take advantage of infant-initiated activities to introduce developmentally-appropriate learning. Each mother/child pair was in the Infant Education Program for 16 months.

Recruitment of the families was done, first, on the basis of geographic location (within a selected target area); second, on the age of the child; and third, on the family's score on a socioeconomic scale. Although families were not selected on the basis of income, most families were in the low- to middle-income range for this geographic area. Names

of prospective families were obtained from school census data, city birth records, and from personnel of community projects serving the area. Staff teachers were used as project interviewers to visit the homes of potentially eligible families, describe the program, collect data from the families, and ask whether families wanted to participate. At this point in the recruitment, the control and treatment conditions were described in the same way to the parents; thus, families were not aware of differences in treatment when their children were subsequently randomly assigned to one of the three treatment conditions. All parents who joined, regardless of the condition they were assigned to, had to agree to receive home visits and to be at home during the visits. Parents in all groups were told that the study was concerned with how babies learned through play.

Program Goals

For the children: The program directors wanted to support the infants' emerging cognitive skills during the important sensory motor period of development. The skills included language and cognitive skills, as well as socio-emotional growth. Maximum development during this early period was expected to help each child achieve the goal of the fullest possible development at later points.

For the parents: The program's aims were to assist parents in realizing their individual potential as child-rearers and in clarifying and realizing their own child-rearing goals. This involved both changes in attitudes and changes in behavior. One goal for mothers was a change in self-concept--to think of themselves as teachers, capable of facilitating their child's development. Another goal was for mothers to change their behaviors--to provide opportunities for learner-initiated activities in the homes, to create a social and physical environment in which their child's intrinsic motivation would not be frustrated, and to introduce developmentally-appropriate learning activities. The program directors wanted them to understand their child's development; in particular, to see growth as a sequence, recognize their child's changing interests and needs, and to see the importance of their child's active experimentation.

Assumptions

It was assumed that teaching was a natural part of child-rearing which most parents were unaware of in their interaction with their children. Therefore, the goal of the project was to make parents aware of the importance in child-rearing of how parents responded to their child and the importance of the types of opportunities they provided for their child. The project emphasized the capacity of parents as effective interactors rather than instillers of knowledge. The program de-emphasized the view of parents as needing expert knowledge and special training in how to rear children; instead, the knowledge that parents and educators had was to be combined to provide the most satisfactory situation for infant development in each family. The directors assumed that parents needed and would welcome support in reaching their own child-rearing goals, and also assumed they had the capacity to rear their own child adequately.

The choice of very young children as the target of the program was based on the assumption that efforts with children under three years of age would not actually be intervention as much as support for the intellectual and socio-emotional developments occurring during this fundamental period of infant growth.

The curriculum was based to a large extent on Piagetian theory. Early learning was seen as change in the child's cognitive structures rather than the acquisition of any specific content. Early learning was considered to be the product of active engagement by the child of his environment. Consequently, the role of parents and other teachers in facilitating development was to provide opportunities for engagement. The sequential nature of child development was emphasized, with achievement during the sensory-motor period considered crucial to all later development.

Although the program gave little attention to wider social changes, sponsors recognized the need for changes in the social structure in order to achieve the goal of maximizing the potential of individual children.

How the Program Worked

Three different conditions made up the experimental project: an experimental group, a contrast group, and a control group. The experimental group received weekly home visits of from 60 to 90 minutes from a professionally trained staff. The professional introduced organized infant activities (based on Piagetian theory) planned to reflect the approximate development level of each child and then supported the parent in observing and interpreting the child's behavior. The professional assisted the parent in planning other ways to provide and respond to similar types of situations during the family's everyday activities.

The curriculum consisted of a viewpoint on child development, a set of developmental objectives (changes in the children that were positively valued); information on learning and development to help the mothers interpret their children's behavior; and criteria for assessing teaching activities. The curriculum did not offer mothers predetermined sets of programmed activities nor training on a set of specific teaching behaviors. The content of the lessons was individualized for each mother/child pair, although the home visitor did present formally organized tasks at each lesson. The emphasis was on guiding each mother in a nondidactic way to develop her own ideas and teaching, and to formulate her own effective child-rearing strategies. The home visitors were to provide alternatives rather than definitive models of adult/child interaction and were to discuss with mothers the relative effectiveness of different teaching strategies with respect to each mother's own child.

The behavior of the child was the focus of the home lessons, but the home visitor was expected to work with the mother, letting her primarily teach the child. The professional teacher's activities often focused on the child when she was offering the mother a teaching model. Program sponsors report that there was an initial tendency for the home visitor to overemphasize her own interaction with the child. However, mothers were

encouraged to assume increasing responsibility for the content and the process of the home visits. Mothers were positively reinforced by the home visitors when they actively assumed the role of teacher during the visits (i.e., choosing an activity, accurately observing developmental changes, making a game out of an activity started by the child).

The home visitor was expected to function as a resource for the mother rather than as an expert telling her what to do. Just as the mother was encouraged to support her child's own discovery and exploration, the home visitor facilitated changes in the mother by supporting her discovery and exploration. The home visitor did demonstrate activities. She also encouraged using supportive language in teaching--to support and extend the child's activities, to expand the child's utterances and to ask questions.

The second treatment condition was the contrast group. It was originally designed to offer unstructured home visits to some families in contrast to the planned home visits of the experimental group. Volunteer college students were assigned to make the weekly home visits and to introduce informal, intuitive play activities while the mother observed. Program sponsors reportes that there was a serious breakdown of relations between these students and the families, which led to a disrupted treatment. Women from the community were hired to complete service to this group. Not only was the treatment for this group of families inconsistent, it might have been a negative experience for them.

The third group was a control group, designed to be a no-treatment group with only periodic testing. This "no treatment", however, was apparently interpreted by some control group mothers as being a stimulating program, and the group ended up functioning as a minimal treatment group. Certain of the measures administered, such as the Picture Sorting Inventory (which required mothers to pick out the pictures showing their child's behavior now and in the future) seemed to have focused the mothers' attention on general development. The testing may have provided a situation in which some mothers could develop a new awareness of their children, and consequently change their expectations and interaction.

Distinctive Characteristics

Home visits were the sole type of intervention used; thus, the program focused exclusively on what went on in the home environment, versus the school environment. The visits were child- and mother-centered. The home visitor introduced activities designed to increase the infant's development. The mother was actively involved in the activities and encouraged to recognize her role as a primary teacher of her child and as an equal with the teacher in operationalizing lesson goals and in formulating approaches to teaching. Primarily nondidactic teaching methods were used by the teacher in interacting with the mother. The program was not based on a pre-developed series of specific, concrete tasks. Parents were encouraged to participate in determining the kinds of tasks to be used. The program was different for each mother/child pair, since the mothers developed their own teaching styles.

Hypotheses

It was predicted that educational support during infancy could prevent the depressed performance in later childhood commonly observed in children from low-income homes. The main treatment effect expected for the children was increased cognitive and linguistic development. Mothers were expected to begin to use more supportive verbal interaction, and be more accurate in perceiving and forming expectations of their child's development. The experimental group was predicted to be superior to both the contrast and control groups; the contrast group was predicted to be superior to the control group.

Results

The sample population consisted of 65 families, about 22 mother/child pairs in each treatment group. Attrition reduced the sample from 88 families, but the rate of attrition was not different for the three groups. The children entered the program at either three, seven, or eleven months--the ages supposedly just prior to major developmental changes. They were tested repeatedly during the program and at one year after the program had ended.

The main measure of cognitive performance was the Mental Scale of the Bayley Scales of Infant Development. At the end of the program, the experimental and control groups scored significantly higher than the contrast group. There was no significant difference between the experimental and control groups. Experimental group children gained an average of 10.3 points and the control group children gained an average of 10.3 points, while the control group children gained 9.4 points over the 16-month treatment period.

The Stanford-Binet was given one year after treatment had ended for the program children. (The children then ranged in age from 31 to 34 months.) The same relationship between treatment groups was obtained (experimental>control>contrast), but there were no significant differences between the group means. None of the group means showed an indication of "cognitive deficit" which commonly appears in low-income children at this age. The overall sample means at the one-year follow-up were even slightly higher than the mean score of a comparably aged middle-class standardization population. At this point in the longitudinal study it is not possible to attribute any special "deterrent effect" to the planned home visits treatment on the basis of measured IQ. In the continuing follow-up of the children more extensive developmental data are being obtained and an untested control group will be incorporated into the design so as to establish more adequate developmental norms for the sampled population.

When all cognitive test scores from all testing points were combined, the overall test performance differed significantly by treatment group, with infants from the experimental group significantly superior. In terms of the immediate effect of the program on cognitive performance, the experimental treatment of planned home visits had a significant but slight effect

on the children's cognitive performance. The results of the one-year follow-up were more equivocal as to the effectiveness of the specific experimental curriculum, although all three groups showed positive effects of being involved.

The children's linguistic and communicative development was measured by the Language Scale, an observer's rating system developed by the project staff. The scale included observations of 14 aspects of language, i.e., quantity, responsiveness, comprehension. At the end of the treat-period, the order of means was: experimental > control > contrast, with experimental and control groups significantly superior to the contrast group. The experimental group was substantially, but not significantly superior to the control group.

On the Motor Scale of the Bayley Scales, there were no significant differences between the groups in motor development, which was an expected result.

Socio-emotional development was assessed by the Bayley Infant Behavior Record, part of the Bayley Scales. The hypothesis being tested was that experimental and contrast infants would be (1) more responsive to outside adults; (2) more likely to play imaginatively with materials, and (3) more likely to show traits related to good performance on cognitive tasks--cooperation, responsiveness, goal direction, attention. The test at the end of the treatment period showed experimental and contrast infants significantly superior to control infants on "response to persons" and "more imaginative play with materials."

There was no significant difference between the children that were systematically related to age of entrance into the program.

The main measure of maternal behavior was the Verbal Interaction Record, which involved taping a session of each mother eliciting verbalizations from and teaching a block task to her child. The test score gave a positive weighting to a mother's expansions and questions and negatively weighted a mother's use of imperatives and negatives. These aspects of verbal interaction were those encouraged in the program curriculum. Experimental mothers scored significantly higher than mothers in the other two groups on the total VIR score. This result supported the program expectations that experimental mothers would show the most supportive patterns of verbal interaction with their infants.

Mothers' scores on the VIR correlated significantly (and positively) with infants' scores on intelligence and language tests. This suggested that the way in which a mother interacted with her child was related to his intellectual functioning. Also, the behavior patterns encouraged by the project were similar to those shown to be related to higher IQ gains for children.

On the Mother's Observation Checklist, a mother's behavior was recorded while the Bayley Scales were administered to her child. Overall, the test-

ings, experimental and control mothers were consistently superior to contrast mothers in terms of positive behavior, and the differences were often significant. At the end of the program, experimental and control mothers scored significantly higher on "relaxed posture" and "smiling to child."

The Ypsilanti Picture Sorting Inventory, an instrument developed by the staff, was used to assess mothers' expectations for their children. The program sought to increase mothers' sensitivity to the developmental needs of their children. The data from one age-group of children (those entering at three months) indicated no significant differences between mothers in the three treatment groups in maternal ability to perceive the actual level of the infants' development.

The qualitative evaluations by home visitors of mothers in the experimental group indicated changes in attitudes and behavior. It was reported that the mothers became more observant of their infant and better able to understand the developmental significance of activities. They provided more play materials and freer access to them, took more advantage of naturally occurring situations to introduce learning games, and showed in general an increased interest in their children's education. Mothers were reported to feel more positive about themselves and their children and seemed to enjoy interacting with them.

This infant education program showed relatively small but consistent results favoring the experimental group children on standardized measures of cognitive performance. In terms of statistical results alone, neither the immediate results nor results obtained one year after treatment distinguished this program from a large group of programs able to produce some intellectual increase. On the other hand, the program's approach to working with low- income mothers seems outstanding in terms of encouraging parents' awareness of their responsibility for the at-home education of their child and encouraging parents to plan and initiate their own learning episodes. It would seem important to have a measure of whether parents were formulating and carrying out their own home lessons after the visits ended. The data on maternal behavior changes were quite supportive of the effectiveness of the planned home visits in altering the quality of mother/child interactions. The performance level of the control group suggested the effectiveness of home visits in influencing maternal behavior, even home visits which were not primarily designed to change parents. Evidently the control mothers took their cues from the many tests given their children and the supportive style of the interviews and began to work with their children at home.

Long-term follow-up of these families as the children enter school could provide important information on the relative performance of the changes in mothers and children from the experimental versus control versus contrast groups. Control group mothers might not be as likely to continue in a teaching role after their program participation ended, since they had not been specifically encouraged and aided in doing so. The form of the experimental group intervention, on the other hand, (along with the positive data on maternal behavior changes) would lead to a prediction of stability of normal development for the children and superiority over other low-income children whose mothers did not benefit from similar training.

EARLY CHILDHOOD STIMULATION THROUGH PARENT EDUCATION PROJECT

Program Director: Ira Gordon

The Early Childhood Stimulation through Parent Education Project (ECSTPEP) began as a pilot study in 1966-67 to train low-income women as "Parent Educators" to enter the homes of other indigent women and teach them how to interact with their infant. After its pilot stages, the project continued to operate with increasing refinement, expanded both in number of families involved and in the program components themselves. A Home Center component was added in 1968 to operate in conjunction with but subsequent to the home units to the infants and mothers. Two-year-old children attended small group classes in the backyard of one of the mothers. The home visits were continued during the year of Home Center classes. Overall, the aim of the project was to break the cycle of poverty and poor school performance into which disadvantaged children were born.

The age of the target infants entering the program ranged from 3 to 12 months. Program participation in the home visits along lasted one or two years and was continuous or staggered during the two years, depending on the treatment conditions to which the pair was assigned. The home visitor program served an indigent population, primarily black, in rural and small-town Florida. Mothers and infants who satisfied program criteria were identified at birth by the staff of an area hospital. The criteria were (1) financial -- the mother checked "indigent" for the economic code on the hospital form; (2) health -- the infant's birth was normal and single; and (3) residential -- the family lived within a defined target area. Mothers were interviewed at the hospital, and those who agreed to continue were visited again six weeks later. No inducements were offered for participation. The families that agreed to accept home visits by Parent Educators were likely to be the parents with relatively high motivation for their child's education. The children were randomly assigned to the experimental or control group at birth, which served to control for motivational differences.

Program Goals

For the children: The aim was to better-equip low-income children to be able to deal with school and eventually obtain meaningful life work. The program was intended to enhance the children's potential for full development and increase the level of their intellectual functioning.

For the parents: The program was designed to help parents acquire skills of playing and interacting verbally with their infant, to enhance the infant's potential for development. The program attempted to increase parents' sense of responsibility for their child's growth. The program sponsors also intended to help parents develop an improved concept of their own abilities as teachers, as well as more positive attitudes toward school and their own child. It was also hoped that parents would increase in their sense of control over their own lives.

Assumptions

One main assumption underlying the program was that the early years of life were especially important in the development of a child's personality and intellect. In particular, the emergence of intelligence was assumed to be a function of early stimulation and of the quality of interaction between the child and his environment. This emphasis on the impact of experience on early cognitive development was explicitly based on Piagetian developmental theory.

The early years were considered critical, and early experiences for low-income children were assumed to be deficient for stimulating development. Low-income children were considered to be damaged in their educational potential because they grew up in homes offering (minimal) constricted intellectual activities, especially in language. Indigent mothers were assumed rarely to see themselves or to function as teachers. They were considered to lack motivational and instructional techniques and to have restricted language fluency themselves. The ECSTPEP put great emphasis on the parent/child relationship as crucial in the child's intellectual and language development and in the child's pattern of motives for achievement.

Program Itself

Nonprofessional low-income women were trained as Parent Educators (PE's). They underwent intensive training before beginning the home visits. Women of background and neighborhood similar to the target families were selected in order to encourage a good working relationship between the PE's and mothers; it was expected that the mothers would feel more rapport with and trust in low-income PE's.

Home visits were made by the PE's once each week to every mother/child pair. Visits were planned to instruct mothers in the mechanics of the program's stimulation exercises and to instill attitudes toward the exercises as play. The stimulation exercises were a sequenced, Piagetian-based series of tasks that were taught to the mothers. The exercises were specific and concrete; they did not involve toys or special materials but were primarily sensorimotor (perceptual, motor, auditory, tactile, kinesthetic) activities. The series was sequenced developmentally in order to match the child's different stages of growth. The sequencing was supposed to produce maximum cognitive growth and to insure personal feelings of adequacy in both the mother and child as they saw the success of their efforts. Language interaction was assumed to be important, but the home activities did not focus on mother/child verbal interaction. The PE's verbal instructions and demonstrations to the mothers comprised the only language training. The PE's visited the homes to demonstrate a specific activity to the mother, show her how to carry out the task, help her understand the purpose of the task, encourage her to use the task, and reinforce both the mother and child in their learning efforts. The mothers were being taught (1) how to perform a set of sensorimotor tasks, (2) how to estimate the ability of the child in order to present the tasks appropriately, and (3) how to think about child development. Mothers could then work with the child on the tasks during the week.

The primary teaching techniques used with the mothers were role-playing and demonstration (modeling). Some direct instruction seemed to be an inevitable part of the teaching sessions. The Parent Educators were instructed not to assume a mothering role with the children but to let the mothers be primarily responsible. In the program's final report, however, it was stated that the Parent Educators were least enthusiastic about completing their progress reports on the parents alone, since they felt that their job was to work with the child and the parent. There may have been some ambiguity about the target of the intervention efforts--mother, child, or both.

Distinctive Characteristics

According to the program design, the mothers were the main target of the intervention. All the intervention took place in the home, which underlined the importance attributed to the home environment and the parents' behavior in the child's development. Mothers were assigned a high level of responsibility in the program. The advantages of the intervention for the child was dependent on the mothers' behavior; the mothers were responsible for carrying out the tasks with their child. The teaching techniques used with the mothers required active participation--role-playing and modeling. There was, however, a didactic aspect to the mother/Parent Educator interaction. Their sessions involved direct instruction in teaching behaviors and efforts to change parent attitudes directly through suggestion.

The program activities were concrete and carefully planned, with a developmental basis to their sequence. The activities guided the mother/child home interaction into patterns considered by program sponsors to be cognitively stimulating. The use of specific tools meant that the form of the home teaching activities was not left up to chance. The mothers were not responsible for planning the activities. The children involved were quite young, and the tasks were consequently more sensorimotor than verbal.

The reliance on neighborhood women as paraprofessional Parent Educators was a special feature.

Main Hypotheses

The ECSTPEP was expected to enhance the intellectual development and functioning of infants, based on standardized measures and performance tasks. It was also hypothesized that the program would increase the mothers' competence and sense of self-worth, produce a more elaborate linguistic code in the mothers, and produce a higher "expectancy of internal control" in the mothers. Program sponsors felt that the mothers participating in the training would see their own usefulness and feel that they had more control over their child's education and development.

Results

Nine different treatment groups were formed, based on different sequences of treatment over two years: E groups received the series treat-

ment for periods of from two months up to two years; C/C received no treatment over the two-year period; E/C and C/E received one year of no-treatment and one year of the series treatment, in different orders; C1/C and C1/E each received one year of nurse visits and then a year of either no-treatment or the series treatment; C3 received a year of "other stimulation", a planned curriculum that was not Piagetian. The groups had different numbers of children, ranging from 4 to 36.

The first hypothesis tested was that the children in the program would be more highly developed at the end of intervention than those whose mothers received no instruction. After the first year of intervention, children who had received the series of tasks were compared with the children who had had no treatment, by means of their performance on the Series Tasks (38 tasks based on the content of the home lessons.) The children were one year old at testing. A signs test of all 38 tasks showed that the E children were superior on 24 and the C children on 11. This pattern significantly favored the E children. On eight items, E children were significantly superior to C children; on one item, this was reversed. The sponsors felt it was particularly important that four of the items significantly favoring the E groups were ones on which the children had not yet been formally trained, suggesting that the training was transferring to other areas of cognitive performance.

Standardized measures of development, distinct from the measure based on the series of home activities, offered another indication of the effects of the program. Of five subscales on the Griffiths Mental Developmental Scale given at 12 months of age, E children were significantly superior on three, as well as on the total score.

It was hypothesized that the children whose mothers were educated continuously for two years (when the children were 3 to 24 months old) would be more highly developed than children whose mothers received no treatment (C/C) or whose mothers received treatment for only one of the two years, when the children were 3 to 12 months (E/C) or 12 to 24 months (C/E). Children from each of these groups were given the Series Tasks at age two. The E children, with two years of the program, scored higher on 15 of the 38 tasks, while C/C children with no treatment were superior on 7. The difference in number of tasks significantly favored the E children. On 4 tasks, E scores were significantly superior to C/C scores. Thus, the children with two years of treatment were superior to children with no-treatment, on the measure of program content.

When the two-year experimental group was compared with the E/C group, the E group scored higher on 20 of the 22 items that showed differences. When E children were compared to children in the C/E group, the E group was not significantly superior on any of the tasks nor was there a significant difference in the proportions of success for the two groups. The children in group E/C did not score significantly higher than C/C children. The C/E children were superior to C/C children on the basis of a signs test.

In summary, the order of success across the four groups at 24-month testing was E/E, C/E, E/C, and C/C. The E/E and C/E groups were significantly superior to the C/C (no treatment) group, but the E/C group was not.

Both the E/E and C/E groups were also significantly superior to the E/C group. Two years of the program offered the greatest benefits to the children, as seen in the superior performance of the E/E group. One year of the program was better than no-treatment, but the timing of the one year made a difference. The children who received treatment at ages 12 to 24 months and who were tested immediately at the end of the treatment were superior to the children who received treatment at age 3 to 12 months. It was not true in this case that "the earlier the better". The lower scores of the E/C group could have been due to a number of factors. They were younger, and the tasks might have been less appropriate for their age. Or, the children might have made substantial and equal gains during their year of intervention, but failed to maintain them during the year of no-treatment before the testing.

One group of children (C3) received a different pattern of instruction than the experimental curriculum of sensorimotor tasks. Their curriculum was also systematic, planned, specific, and made up of a set of activities to be carried out by mothers with their children; this other curriculum, however, was not Piagetian-based. The PE's designed a set of tasks based on their perceptions of the children's needs. C3 children were compared with children who received the standard curriculum of tasks. Children had been randomly assigned to the E and C3 groups at the same time. After each group had received one year of their curriculum (at age 3 to 12 months), they were compared on the 38 Series Tasks and the Griffiths Scales. There were no significant differences between the two groups. Both groups scored better than a no-treatment control group on two of the five scales of the Griffiths. The two curricula were not differentially effective, and both were superior to no-treatment. In both curricula, parents were trained using a set of carefully-planned, concrete tasks. With these similarities, it did not seem that the theoretical basis of the curriculum made a difference. This conclusion by the ECSTPEP sponsors was in agreement with the conclusion from the Ypsilanti Curriculum Demonstration Project (pp. 125-127) that the important curriculum variables seemed to be planning and specificity.

One group (C1) of children and their mothers were visited monthly by nurses while the children were 3 to 12 months old. This treatment was intended to measure the effects on the children of a visitor in the home and attention to the family independent of the effects of the specific set of tasks. There was found to be no significant difference between this group and a no-treatment group on the Griffiths Scales. On the Series Tasks, five tasks showed a significant difference favoring the no-treatment group, but there was no significant difference in the proportion of successes on the Tasks between the group receiving nurse visits and the group receiving no visits at all. The presence of an interested visitor acting in an advisory capacity did not produce significant gains for the children. This result suggested that the effects of the program were due to the actual mother/child interaction centered on the tasks rather than due to the presence of the PE.

The intervention of the PE's did enhance the development of the low-income children. The program sponsors considered the results very encouraging given the small number of visits actually involved--17 the first

year and 25 the second year. Confidence in attributing the results to the treatment was heightened by the evidence from the nurse visits. While the presence of a home visitor in itself was not shown to be a crucial influence, the particular tasks were not shown to be crucial either. The careful planning, specificity, and degree of structure of the tasks might have been important variables; also, the actual interaction between mothers and children around the learning activities.

Maternal variables: Program sponsors set goals for the program that went beyond the children's cognitive development. They also attempted to produce changes in mothers' self-perceptions and in their language behavior. One hypothesis was that mothers receiving instruction would feel a stronger sense of control over their own environment. Scores were taken for both treatment and control group mothers when their infants were 3 and 12 months old. At the end of the nine months of instruction, the mothers in the treatment group had moved toward a more internal orientation (as tested by the Social Reaction Inventory[1]). Only mothers receiving the treatment showed significant changes. Involvement in the program did not, however, produce significantly higher reports of self-esteem, tested by the "How I See Myself Test." No substantial personality changes were shown by the mothers after nine months of participation (which was not unexpected).

No significant correlations were found between a mother's expectancy of internal control and a child's developmental level, although program sponsors had hypothesized that mothers who felt more in control might be more likely to provide better learning opportunities and stimulate their children's development. Nor was there a significant correlation between amount of infant gain in performance and the mother's development toward a more internal orientation. No clear relationship was established between maternal attitudes and child performance, at either 12 or 24 months of age for the child.

Mothers were interviewed when their children were age three. The reports from mothers who had received the experimental treatment indicated that they were significantly more involved in play with their child than the control mothers; significantly more experimental mothers said that they had changed their behavior during the program period; significantly more said that they expected their children to be a college graduate.

Assessment of maternal teaching behaviors was not part of the ECSTPEP, but in another project directed by Gordon and Jester (1972), maternal behaviors were analyzed through the use of videotapes. Tapes were taken of mother,

[1] The Inventory was a modification of the Robber I - E Scale.

child (9-12 months of age), and parent educator. Patterns of maternal behavior were found that correlated with the children's Bayley scores. The behavior that correlated positively was termed the "ping-pong pattern" of rapid mother/child interactions, in which the two participated in a sequence of comments and responses. At entrance, the mothers varied considerably in their skill at this ping-pong pattern. All the mothers did not begin the program with the same "deficits" in pattern of interaction with their children. Some mothers, especially those in the control groups, were still unskilled at the end of a home visit program similar to the ECSTPEP. The maternal behavior that correlated negatively with the children's scores was "sustained adult behavior." That is, some parents did little interacting and responding, instead doing most of the talking themselves and directing the child. Certain language variables were also analyzed from the tapes. Both "number of different words mother used" and "mother's interrogatory sentences at age two" were significantly related to the child's Binet scores at age three and at age five. This data on the mothers' behavior suggested a relationship between the children's intellectual performance and home variables, variables that were supposedly affected by the treatment. The tapes did show that while the program was operating, mothers being visited increased their amount of interaction with their infants and the amount of instructional interaction increased. The variables of maternal behavior shown to correlate with children's performance were the kind encouraged in the ECSTPEP in mother/child interaction.

Demographic factors: A final set of hypotheses involved home conditions and child performance. No difference in child performance was found as a function of density and crowding conditions in the home. The number of children in a family, the age of the mother, and the number of years of education of the mother were not related to the differences in the children's performance in any treatment group. Total amount of verbal interaction in the homes (a relatively crude measure taken from the Parent Educator Weekly Reports) was slightly related to the children's relative positions within the treatment groups. There was no significant difference in child performance or in maternal movement on the Social Reaction Inventory related to the number of home visits.

Neither the general home environment variables nor maternal attitudes were shown to have a strong relationship to the children's test performances. Maternal behavior seemed to be more promising in predicting the level of children's intellectual functioning.

Home Learning Center

In 1968 the Home Learning Center component was added to the ECSTPEP. Children whose mothers had been trained in the series tasks for two years were introduced to a group learning situation in the home or backyard of one of the mothers. Children involved in these Home Learning Centers were by then two-year-olds who had been in the program since three months of age; who attended the Home Center for one year. Five children were at each center for two, two-hour periods per week. The mother who lived in the

home where the center was located was employed as an aide to the Parent Educator who had become the "backyard center director." The Parent Educators continued to have weekly meetings with each mother-child pair. The Home Learning Center component was added primarily to give the children a different group learning experience and to supplement the mother in her role as the child's main teacher. With two adults for five children, the learning situation still remained intensive for the individual child. However, the group experience was expected to help prepare the child for a normal school classroom.

Longitudinal and Follow-Up Results

The follow-up results were done on the following groups: 20 children who had had full treatment for three years (two years of the home-based treatment and one year of the Home Learning Center); 40 children who had been in the control group for three years (C); 10 children who had been in the treatment group for the first two years (E/E/C) and 7 children in for the first and third years (E/C/E); and children who had been in the program for one year only, the one year being at any point in the sequence (56 total).

Age 4: The children who had participated in the third year of the ECSTPEP--the Home Learning Center-- had been out of the program one year at this first follow-up testing. The other children had been out for two or three years, depending on their treatment group. All of the experimental groups except C/E/C (second year only) had at least maintained their original gains in IQ of around 10 points (on the Stanford-Binet). Children in the E/E/C group gained 5 additional IQ points during the year, increasing their total gain to 15 points. Only the C/E/C group declined in score during this year. On the Stanford-Binet, the PPVT, and the Leiter, all groups who had been in the program for two or more consistent years scored significantly higher than children in the control group. For children who had received only one year of the program, those who had been in for the first or third year only were superior to children who had received the second year only.

Age 5: Two years after intervention ended, three groups continued to maintain their original gains: E/E/E, E/E/C, E/C/E. Children in the E/C/C group increased their IQ scores. Children in the C/E/E and C/C/E groups declined in IQ scores by at least 3 points. Children who had been in the second year only, C/E/C, scored slightly below their post-test IQ score: their average IQ was the lowest of all the groups, including the control group. Only two of the experimental groups scored significantly above the control group--E/E/E and E/C/C. However, all groups except C/E/C scored above the controls. On the Caldwell Preschool Inventory, three groups were significantly superior to the controls: E/E/E, E/E/C, and E/C/E.

Age 6: In the third year of follow-up, all of the experimental groups outscored the controls. Three experimental groups were significantly superior: E/E/E, E/E/C, and C/C/E. The highest scoring groups were E/E/E and E/E/C. Seven of the eight experimental groups maintained all or nearly all of their post-test gains. Only children in group C/E/E declined more than 2 IQ points.

NEW ORLEANS PARENT-CHILD DEVELOPMENT CENTER

Research Staff: S. R. Andrews, W. L. Bache, J. M. Blumenthal, G. Wiener*

The New Orleans Parent-Child Development Center offers a program for low-income mothers and their infants. The program is designed to change parents' attitudes and behavior toward their child in ways which encourage the child's development. Mothers participate in classes at the Center or in their homes learning child development principles, principles of learning, and child-rearing behaviors which stimulate their child's competence.

The program began its pilot phase in Fall, 1971 when the first group of mothers and two-month-old infants were enrolled. Subsequent waves have since started in the program. Eventually, mother/child pairs will remain in the program until the children are three-years-old. The pilot group was designated Wave I. Two experimental groups were formed--Center I (group classes at the Center) and Home Visit I. Two control groups were also formed. Serial Control I mothers and children received no treatment but were tested at the Center every two months. Yearly Control I families were tested only once, in order to control for the effects of intensive testing. The four groups in Wave I were not randomly assigned, but the groups of mothers were not significantly different on measures of IQ, SES, and selected demographic variables. Wave III, begun in Fall, 1972, is a replication of Wave I but with random assignment. In Wave II, the infants were 12 months old at the time of entrance, although they had been involved in testing every 2 months since age 2 months. Random assignment was used in Wave II. There are approximately 20 mother/child pairs in each group in Waves I and II, 25-30 in Wave III. The families in the program are low-income and black. All families live in the same area of New Orleans. Besides residency in this area, entrance criteria are good health for both mother and child, a normal pregnancy, mother's age at least 17 years and family size less than 6 children.

Program Goals

For the children: The program was aimed at long-term changes in the children. The goals were increased emotional, social, and intellectual development for the children, which were expected to result from changes in the parents.

For the parents: The program goals involved changes in parents' knowledge, attitudes, and behavior. The program was aimed at giving parents a broad base of information about child development and learning. This knowledge would be instrumental in changing parents' attitudes toward their child and in changing their child-rearing behavior to be more supportive and stimulating of development.

*Listed alphabetically

It was hoped that parents would become aware of their own capabilities and responsibilities as teachers and would take a more active role in arranging their child's environment. The program demonstrated actual home-management behaviors to encourage parents to conceive and implement their own cognitively-stimulating interactions with their child.

Assumptions

One set of assumptions concerned conditions affecting the infant's development. Parents were considered to be a child's principal teacher. The parents' style of interaction was assumed to influence the child's development, and this influence could be negative or positive. Characteristics of parent/child interaction assumed to be positive included active participation by the parent, positive control with rationales offered, praise and positive reinforcement, elaborated language, and language used to initiate new behavior and structure a verbal response from the child. It was assumed that certain response patterns were optimal for encouraging a child's development and that low-income parents were less likely to be aware of these. All parents were considered to need a general knowledge of child-rearing and child development in order to intelligently choose their own practices. Parents who understood child development were assumed more likely to support their child's learning and growth through use of educational processes like reinforcement.

A second set of assumptions involved learning. Adults and children were assumed to learn best in the context of supportive relationships. Also, active learning through practice and repetition was considered to be most effective.

The developmental theory underlying the program was eclectic; Piagetian and social learning theory were particularly emphasized.

How the Program Worked

Two approaches were used in working with the parents--Center classes and individual home visits. The content of the lessons in the two approaches was comparable; both contents were based on curricula developed by the program staff. In the Center groups, mothers bring their infant to the Center twice a week for three hours each visit. Home Visit mothers received biweekly home visits of about an hour each. The staff educators were nonprofessionals trained as teachers to work with the mothers and infants.

In the Center classes, the staff educators worked with the mothers in group discussion teaching sessions. The educators taught the mothers about principles of child development. The educators also guided and advised the mothers in improving their methods of interacting with their infant.

The daily program was planned around particular activities which were demonstrated to the parents and then initiated by them. The Center was set up to be realistic, i.e., like a home environment. Mothers cared for their infant, interacting with him in practical situations. The educators taught the mothers in the context of rehearsal of everyday routines,

like bathing. The educator observed the mother and offered alternative methods which were considered more cognitively-stimulating, basing her suggestion on information about child development. The practical demonstrations were tied to concepts in learning or development. For instance, parents were shown how to use positive reinforcement, and the technique was tied to facts about language development in the child. Mothers were encouraged to take advantage of natural learning processes in the child, such as curiosity, attention, attachment and trust.

The program sponsors emphasized the importance of teaching mothers more than specific interaction techniques or rote utilization of stimulation exercises. Information on child development was considered important for preparing parents to make their own informed choices in managing their child's behavior. The curriculum was designed to teach parents about all aspects of the child's development--cognitive, emotional, social, physical--as a way of changing the parents' whole approach to their children.

The teaching techniques used with the mothers were modeling or demonstration, role-playing, group discussion, and direct teaching. When the educators worked with individual mothers, videos could be made of the mother's behavior to show her what she was doing. Games and puzzles were used by teachers with the mothers (although sponsors stressed that the mother/child interaction was not based on games.) Games and puzzles were used in particular to increase a mother's language skills. The mothers also received written curriculum materials. The materials were sequenced to increase in difficulty as the mother's language skills were assumed to increase. Language skills were emphasized as an important tool for mothers to use in continuing to learn on their own after the program and as important for mothers to be effective language models for their children. The written workbooks were designed by the staff. Different workbooks were available for different ages of children. The books included lessons on child development, day-by-day suggestions for interacting with the infant, and tables for keeping records of the child's behavior.

During the program, mothers were encouraged to take on increasing responsibility as teachers. They were primarily observers at first but were gradually helped to learn to keep records and give reports on their child's behavior, as well as initiate their own teaching efforts.

The Home Visit program was not described in available program reports. The reports indicated that the educator/mother interaction was similar to the Center's but with one-to-one teaching only. Monthly meetings of a social nature were also held with the Home Visit Mothers.

As of October, 1973, a stipend of $5.00 per meeting was offered to mothers as an attendance incentive. The stipend did increase average attendance from between 50 and 60 percent to 85 percent.

The program for the older children (two-to-three years) involved certain changes. The program emphasis remained on the parent training, but mothers and children attended separate classes. Consequently, the training involved less modeling and infant demonstration. Emphasis was placed on the beginning school years and how mothers could best prepare their child for school.

Distinctive Characteristics

The New Orleans Center program was focused on working with low-income mothers as a way of increasing the long-term development of low-income children. The program efforts were concentrated on the mothers. The parents were considered the primary teachers of the children; and in the actual program operation, the parents did most of the interacting with the children. The interaction between staff educators and the infants appeared to be mainly for demonstration purposes. The Home Visit treatment, located in each mother's home, seems likely to have further reinforced the program emphasis on mothers and their part in modifying the home environment. The home visits also seem likely to have encouraged daily home interactions between mothers and children. Program sponsors felt, however, that the group lessons at the Center offered benefits in terms of group motivation and support for parents' changes.

The program was ambitious in its desire to go beyond training parents in concrete techniques to try to develop in parents a substantial base of knowledge. The program sponsors hoped that parents would approach child-rearing in a new way and would structure their own everyday interactions with their child based on their understanding of children's developmental needs and child development principles.

The program goal was for parents to ultimately consider themselves responsible for observing their child, relating his behaviors to developmental ideas, and structuring their interactions to stimulate the child appropriate to his level of development. There seems to have been some conflict between this goal of independent parent behavior and some of the teaching methods. The teaching was fairly didactic and formal, with the expert advising the parent. Role-playing and video-taping were used, and these methods actively involved parents.

The use of realistic, practical situations at the Center was an unusual feature. Instead of focusing parent-child interaction on specific educational activities or games, the program emphasized broad changes in interaction styles in daily routines. The workbooks helped guide parents' home behavior; but, in general, the program did not structure parent/child interaction away from the Center through specific assignments.

Hypotheses

Immediate changes were not expected in the children. Their gains were considered dependent on changes in their parents which were assumed to occur gradually during the program. The program effect on the children was not expected to appear until the children and their parents had been in the program for at least two years. By that time, children whose mothers attended either Center classes or Home Visits were expected to have made significant gains in cognitive performance. Children were expected to continue showing gains after they graduated from the program at age three.

Changes in program parents were not expected to appear until the parents had participated for two years. Changes were expected in the parents' style of interaction, with program parents making significant

positive changes compared to control parents. There were over 20 specific hypotheses about parent style; these hypotheses are considered in the Results section. Program parents were expected to have more positive attitudes than control parents toward education and their role in it. Center group parents were expected to make greater gains than Home Visit parents, due to the benefits of group processes. The data to answer this last prediction were not available at this point, nor were there data available from Wave II to assess the effect of entrance age (two months versus 12 months).

Results

The data from the program are still being collected and analyzed. Data were available from Wave I testing, for children enrolled from two-months to 2½ years, and from Wave III testing, with children up to 22 months of age. The incomplete state of the data requires caution in making any final conclusions.

Changes in the children: The Uzgiris-Hunt Scales were used to measure competence in sensori-motor behavior. At age 22 months the Center I* group children scored significantly higher than Serial Control I children on 2 out of 5 Subscales. On a third subscale, the Center I group was initially lower but scored slightly higher at 22 months of age. The Center group from Wave III reached the top level performance on 4 out of 5 subscales at a significantly younger age than their Serial Controls.

On the Bayley Mental and Motor Scales, the experimental groups from both waves I and III declined on their mental scores from seven months on, starting 15 - 25 points above the norm and finishing at about the norm. On the psychomotor scale, the Center I groups scored significantly higher at 25 months than their Serial Controls.

Parent changes: Every two months during the program, measures were taken of actual interaction between the mother and child in both an unstructured observation in the Center waiting room and an unstructured home observation. Data were available for the Center and Serial Control group mothers in Waves I and III at the 4 month, 12-month and 24-month testing times. It should be noted that the results thus far are based on small groups of approximately 10 mother/child pairs per group. Considerably more data have been collected but not analyzed at this writing.

Six dimensions of mother/child interactions were coded. The first dimension included 3 global ratings of "good mothering" taken from Mary Ainsworth's work. Mothers were rated in terms of sensitivity versus insensitivity, acceptance versus rejection, and cooperation versus interference. Center mothers were expected to be more sensitive, accepting, and cooperative towards their child than Serial Control mothers after two years of intervention. The Center I group of mothers was significantly more sensitive and accepting than the Serial Control I group at the two year testing. In Wave III, the Center III group mothers were significantly

*Center I refers to Wave I and Center III refers to Wave III.

more sensitive, accepting and cooperative than their control group at the 12 month testing.

The second dimension of mother/child interaction was the Amount of Language Mother Produces. No differential predictions were made and no significant differences were found on this dimension between Center and Serial Control mothers in either wave.

The third dimension was the Mean Length of the Mother's Utterances. By two years, Center I mothers were expected to begin to use appropriately longer sentences than the Serial Control I mothers. At the two-year testing, Center I mothers used significantly longer sentences than Serial Control I mothers.

The fourth dimension of mother/child interaction scored was the Amount of Encouragement the mother gave the child. Center mothers were expected to increase in the amount of encouragement they give their children. The Wave I Center group gave more encouragement than the Serial Controls; however, the difference was nonsignificant at the two-year testing. The Wave III Center mothers showed significantly more encouragement toward their child's behavior than their controls at 12 months.

The fifth dimension involved the Functional Uses of the Mother's Language--how mothers used their language as a tool to order their child's environment, identify objects and concepts, describe, etc. Language usages were categorized as positive (maternal elaboration, praise or positive reinforcement, general conversation, language used to initiate new behavior or force the child to structure a verbal response etc.) or negative (negative reinforcement, restriction, criticism, etc.). An index of the "net positive use of language" reflected the total positive usage minus the total negative usage. Even though the negative uses of language normally increase during the toddler period, Center mothers were expected to use less negative language and more net positive language than their Serial Controls. Center I mothers used significantly less negative language and more net positive language at the two year testing. Center III mothers used more net positive language than their controls, and the difference approached significance at 12 months.

The sixth dimension of mother/child interaction was the Techniques of Maternal Participation with the child. Maternal techniques were categorized as positive (teaching attempts, active participation, justification, facilitation of the child's perceived goal, positive reinforcement and praise, and affection) or negative (restriction, punishment, negative reinforcement, rejection and ignoring child). As with the Functional Uses of Language, a net positive maternal technique index reflected the total percentage of positive techniques after subtracting the total negative techniques. Center mothers were expected to show a greater increase in positive and net positive techniques and fewer negative techniques than their Serial Controls. At the two-year testing the Center I mothers used more net positive and fewer negative techniques than the Serial Control mothers. The differences in net positive techniques approached significance. The Wave III Center mothers showed significantly more net positive techniques at the one-year testing than their Serial Controls.

One measure of parent attitude change was available, taken from Hess and Shipman's Educational Attitude Survey. There was a slight trend for Center groups in Waves I and III to feel more powerful in controlling their child's education. Program sponsors predict larger attitude changes during the third year of the program when the curriculum emphasizes the child in school.

The data are preliminary, and fuller information on the program will be available. The small group size requires caution in interpreting the results. However, the trends are consistent; and their consistency over a variety of measures strongly suggests that the program is influencing the style of the parents' language and interaction. The effects of these changes remain to be convincingly shown. Further testing will be crucial, especially testing of children at an older age where IQ test scores are more reliable. One strength of the evaluation is the repeated testing every two months. This plan permits examination of changes over time--how long does it take a program to effect behavior changes in parents, etc. The data suggest that it is taking from one to two years for significant differences to show up. This evidence supports long-term intervention and long-term assessment of program effect. The goals of the program have not been fully evaluated. The program sponsors want to give parents knowledge and confidence which will change their approach to child-rearing; mothers are encouraged to use their knowledge to consciously structure their interactions with their child in ways that stimulate growth. Some measure of the amount of parent initiation would be interesting, as well as some indication of whether the parent's rationale for their behavior reflects knowledge of child development. The program sponsors recognize that their goals are comprehensive, and their evaluation reflects this. The emphasis on parent changes in the evaluation and the variety of interaction variables measured are headed in the direction of a wealth of information on the program's effects.

BIRMINGHAM PARENT-CHILD DEVELOPMENT CENTER

Program Sponsors: T. Lasater, P. Malone, P. Weisberg, C. Gillion

The Birmingham Parent-Child Development Center is one of three centers designated in 1969-70 to operate as a research center to develop, document, and evaluate model intervention programs for parents and their young children (also see pp. 25 & 67). The Birmingham program is designed to help low-income mothers learn both to interact with their child so as to facilitate the child's development more effectively and to cope with other demands on them as adults so as to increase the probability of actual use of new interactions with their child. The mothers progress through a sequence of experiences. They initially learn new ways to interact with their child via imitation of modeled behavior during actual care for their child and learn new ways to interact with adults via special classes for adults only. After 15 months in the program, mothers assume some responsibility for teaching other mothers.

The Center ended its pilot testing and began full operation in the Fall of 1971. Families enter the program when the child is 3-1/2 to 5 months old and remain until the child is 3 years old. Recruitment occurs on a month-by-month schedule. It is a Center-only program: mothers and children initially attend the Center for three half days each week and progress to attending the Center for five full days each week. The first 17 "graduates" completed the full program in Fall, 1974. By Fall, 1975, 60 will have graduated.

Families in the program come primarily from housing projects in five low-income neighborhoods of Birmingham. Participating families are black and white volunteers who either contact the Center on their own or are recruited in door-to-door canvassing by Center representatives. The representatives explain the program to mothers, including the bi-racial characteristics, random assignment to program or control groups and the benefits--a $5.00 stipend for each session attended, health care, transportation, and some meals. New participants are taken into the program each month so that the Center population of approximately 125 mothers is relatively constant in number. Both black and white families are presently enrolled, and the goal for the program is 60% black and 40% white families. Random assignments to experimental or control groups are carried out separately for black and white families.

Program Goals

For the children: Program sponsors hope the information and skills acquired by the mothers will help them prepare their children to be reasonably self-sufficient, happy, socially mature adults, able to cope with future situations in school, home, and job. To this end, the program sets objectives in the areas of physical and motor abilities, language competence, intellectual abilities, and social abilities. The objectives are considered to define behavioral precursors to future development.

For the mothers: Program sponsors have two major goals. First, mothers are expected to develop techniques which increase their ability to support their child's growth. The program is aimed at altering both the quantity and quality of the mother/child interaction so as to make it more valuable to the child's development. Qualitative changes include more active participation by the mother, increased facilitation of the child's use of materials, etc. Along with behavioral changes, the program is concerned with attitude changes in the mothers, such as an increased appreciation of the mothering role and its importance, and with expanding mothers' knowledge in home-management areas. Second, mothers are expected to increase their ability to cope with demands on them and to improve their interactions with other adults. To these ends, the program is focused on developing specific coping behaviors in the mothers: obtaining and evaluating information, forming plans, expanding social interactions, and increasing communication skills. Development of such coping behaviors is intended to increase the mothers' self-esteem and sense of personal efficacy.

Assumptions

The program is aimed at low-income families. The program involves very young children, who are in a crucial period of rapid growth. It is assumed that their development will be greatest in the context of enduring reciprocal relationships with people to whom the child is emotionally attached.

Low-income children are considered likely to have problems coping with the demands of school and likely to demonstrate "deficiencies" in performance. These deficiencies in performance are assumed to be due to the adaptation of low-income children to two major aspects of their environment: (1) differences between the special culture of poor and minority children and the dominant culture and (2) the quality of mother/child interactions, which are more likely to be custodial and minimal. The children, themselves, are not assumed to be cognitively deficient. Two possible ways of overcoming these deficiencies are considered by program sponsors: (1) changing parent/child interactions to offer more support to the child in coping with the demands of both his other subculture and the dominant culture; (2) helping poor or minority adults to cope better with the current dominant cultural demands on them.

The program is based on a social system theory that considers an individual as part of a whole interacting system of many individuals in a particular setting. Understanding and promoting change in any one individual consequently requires involving these other individuals and considering what each individual brings to the situation in terms of needs, past experiences, and so forth. The program involves mothers and children in cooperative change. Mothers are assumed to teach their child and other children; children teach mothers; mothers teach other mothers. The Center is designed to be a social system where change is systematically planned and where members help each other to change. The social system theory has led to certain emphases by the program sponsors: considering the effects of situations outside the home; being aware of differences in the past experiences and home environments of different mother/child pairs and, thus, not expecting the

same changes in all; considering all participants as active, with no one agent (mother, child, or teacher) as dominant or as the expert; accepting the importance of the emotional involvement of all agents in change. In sum, the program is described as an encompassing social setting with accompanying social structures which provide the necessary place, time, example, and reinforcement for desired changes in the mother/child interactions.

How the Program Works

The Center is organized into three types of nurseries, based on age of the children. Progress from nursery to nursery is timed to accord with the development of the children's attachment. From entrance until age 6 months for the infants, the mothers and their infants are together in Nursery I. The mother/child pairs remain in this nursery for a maximum of three months. This homogeneous grouping is expected to reduce stress for newcomers and to set up a situation where mother/child attachment is facilitated by one-to-one interactions between mothers and children. The main activities for the infants are orienting to and exploring visual, auditory, and tactile stimuli.

From 6 to 18 months of age, the children are in Nursery II. Nursery II includes a wider age range, which gives younger children models of more mature, mobile children. The older children also act as examples for the mothers' expectations of their children. Up to age one year, the infant's mother remains with him in Nursery II. Up to one year, the one-to-one mother/child interaction is encouraged and primary attachment is assumed to be developing. However, the children are also encouraged to form secondary attachments to other mothers, particularly "Model Mothers" who engage in frequent, consistent interactions with the children. The mothers move to a different nursery when their children are 12 months, while the children remain in the same Nursery II. At this time of separation, the children are assumed to be supported in becoming independent of their mothers via the secondary attachments that have been formed. Mothers do continue to visit their children in Nursery II's several times a day. In Nursery II's, the activities encouraged for the children are interest in and responsiveness to their environment, manipulation skills, verbal control, and discrimination.

Nursery III's are for children 18 to 36 months. Children are in these nurseries with mothers other than their own. Peer interactions are encouraged. Again, the older children are considered to function as models. The curriculum for children in their second and third year in the program stresses self-awareness, cognitive and language development, and object awareness.

In general, the children's curriculum focuses on both the development of skills and concept development (the development of mental schemas.)

The experiences for the mothers (adult curriculum) are sequenced. Mothers participate in different nurseries according to the age of their children. Mothers are also offered five roles which can be assumed, depending on each mother's interest and abilities and on the Center's needs. The first

role is designated Participating Mother. Mothers function in this role usually until their child is 15 months old. A Participating Mother (PM) works with her own child while in Nursery I and II, and learns about new mother/child transactions from "Model Mothers". She is also given a choice of classes for herself that take her out of the nursery for part of each day. In Nursery I, the PM is considered to be adjusting to the Center and learning that the Center is for both her and her child. In Nursery II, the PM takes on increased responsibility in developing new transactions with her child and with other adults.

The three-month period following separation from her child is a transition period for PM. She spends from two to four weeks as an observer/assistant in most aspects of the program. Following this experiential overview of the program, the mother changes roles and titles.

The second role is designated Senior Participating Mother (SPM) and involves new responsibilities. The SPM attends the Center 5 half days per week. The fifth day is primarily a training day without interaction with children. During a series of apprenticeships, the SPM learns the roles and some of the skills of other, more experienced mothers and staff without assuming full responsibility in any of these roles. As apprentice to the Model Mother I (maximum 5 months), the SPM develops skills in interviewing, scheduling and teaching adults in one-to-one settings; as apprentice to the Model Mother II (maximum 5 months), the SPM develops skills in planning lessons, supervising a nursery and teaching adults in one-to-many settings; as apprentice to the caretaker of the older siblings' nursery (maximum 3 months), the SPM develops skills in planning lessons, extending principles from working with children under 3 years to working with children over 3 years and teaching children in one-to-many settings; as apprentice to a supervisor (maximum 5 months), the SPM develops her skills in planning training sessions, coordinating activities in various parts of the Center and maintaining adequate supplies for the nurseries. She attends the Friday training classes for the individual to whom she acts as apprentice, but she also continues her own choice of classes. In these jobs, the SPM has decreasing supervision and increasing responsibility.

Anytime after 3 months apprenticeship to the Model Mother I, a SPM may choose and be selected by the staff to assume a third role as Model Mother I (MMI). She loses her $5.00 stipend and free transportation but goes on a salary that increases her pay. She works five days per week, 8 hours a day. A Model Mother I works in the nursery of her choice, primarily with the individual mothers. She attends training classes designed to help her meet new responsibilities. Model Mother I is considered to be a teacher and a learner.

After at least 3 months experience as a MMI, the MMI may choose and be selected by the staff to serve in a fourth role as Model Mother II (MMII). The MMII receives increased pay and increased responsibility in her nursery. Besides working with groups of mothers and mother/child pairs, she helps plan lessons and manage the classroom.

The fifth role of Senior Model Mother (SMM) is reserved for exceptional MMIIs during their final 3 to 6 months in the program. The SMM selects a task (such as using videotape equipment) or an aspect of the Center (such as health care/health education) in which she is most interested. Special work and training arrangements are then developed for the SMM.

Each mother decides whether she wants to change roles. Approximately 80% of the mothers develop acceptable levels of skills and choose to become Model Mothers. All mothers have experience as both learner and as a teacher of their own child regardless of role. The use of mothers in higher-level Center positions means that most mothers are taught by other mothers who are similar to them.

The main methods used in teaching transactions to the mothers are modeling (demonstration), guided practice, and written materials. New transactions are demonstrated for mothers to imitate. Their practice is then guided by teachers (both MMs and SPMs), who reinforce the learning and identify factors inhibiting optimal interaction. Video recording of actual interactions are made and discussed in small groups of mothers. Written manuals are available for mothers, geared to the particular role of the mother and/or age of the child. The manuals describe the role expectations, explain child development principles, and describe the child's curriculum activities; they also suggest interaction sequences for the mothers to carry out in their everyday transactions with their infant at home and in the Center. The group classes for mothers are informal rather than didactic. The classes include films (e.g., on sex education, child care), discussions and speakers. Mothers are offered a choice of classes, for obtaining a high school dipoloma (GED) or a Red Cross Certification, crocheting, and cosmetology.

A number of services are offered to mothers under the assumption that such help will decrease stress and facilitate change in the mothers. Services include health care for the children, dental care for the mothers, lunch and breakfast, and a nurse available for counseling on health matters and minor first aid.

Distinctive Characteristics

The Birmingham Parent-Child Development Center offers a planned environment for mothers to work in with their infants, an environment designed to be conducive to strong affectionate ties between mothers and children, as well as more stimulating interactions. All contact takes place at the Center, in the Center environment. Home assignments are not made, although the new interactions and attitudes being encouraged are meant to apply outside of the Center as well. The written manuals do suggest how mothers can use their new techniques at home. The program emphasis is on setting up a Center environment where changes in the mother will most readily occur. The parent training is most important in the program plan, although there is also a sequential curriculum for the children. The parent training is not focused on a set of highly specific interaction techniques or on very broad, general principles. The program is designed as a carefully-sequenced environment offering the mother and child opportunities for developing progressively more complex interactions in a supportive setting.

The multiplicity of roles for the mothers is an unusual feature. In a sense, the program acts as a career ladder for participants. The level of responsibility a mother has depends on the role she is in. Participating Mothers are the primary teachers of their own children, although PMs are learners in their relationships to the Model Mothers and the teachers. Approximately 60% of the PMs' time is spent in activities designed to promote the role of teacher of their children and 40% on activities for the PMs as individuals. The apprenticeship roles of the SPM place her in a sort of "student" teacher position. Those who progress to being Model Mothers gain a relatively high degree of responsibility. Model Mothers move beyond teaching their own child to teaching other adults. Part of the program's goals are to offer mothers the skills, knowledge and attitudes that will help them cope successfully with their world. The sequence of roles and experiences makes this goal seem feasible.

Hypotheses

The program children are expected to maintain a normal average score on standardized IQ tests, while control group scores are expected to decline with age. The difference between the program and control children is expected to increase with age. During testing, program children are expected to be more responsive to people, happier, less fearful and tense, more active and goal-directed, more imaginative and interested in objects in their physical and social environment.

The program is planned to accord with the development of mother/child attachment. The locating of mothers and children in different nurseries is structured and timed to first strengthen early mother/child attachment and then to encourage independence and secondary attachments. As a consequence of this timing, program children are expected to develop specific attachment earlier than control children. Program children are expected to demonstrate stronger attachment behavior on a variety of measures--greater sensitivity to mother's leaving, more active and social play in the presence of their mother.

Program mothers are expected to increase in their knowledge of home management and related topics. They are expected to change their attitudes toward their children--to believe less in being over possessive, strict, domineering, punitive and controlling behavior. In play situations, program mothers are expected to show a greater range and frequency of prosocial behaviors and more sensitivity to the child.

Results

To date, the heaviest concentration of data are available primarily for the first 18 to 22 months in the program. Experimental or control group assignment was by a table of random numbers, and extensive pre-test comparisons of those who remained after 18 months failed to indicate differential dropout.

Data were available from the black families only, due to the lack of an adequate control group for the white families. Since the total program participation is to be 3 years, the effect of the program may not be accurately estimated by results after less than 2 years of participation.

Effects on the children: The results from two major standardized intelligence tests indicate that program children are well within the normal range while the control children are falling behind national norms. Scores on the Mental Development Scale of the Bayley Scales of Infant Development given at 22 months of age to program (n=35) and control (n=37) children yielded a program mean of 96 and a control mean of 88. The decline of young poverty-level children typically found was not seen in the test scores of the Birmingham PCDC children, suggesting that the program was, at the least, preventive in nature. Neither the Psychomotor Development Index nor the Infant Behavior Record (both part of the Bayley Scales) differentiated between program and control children at 22 months of age.

Longitudinal data collected on the Bayley Scales of Infant Development showed significantly higher scores for program children versus control children across testing periods. Roughly 18 infants in each of the groups were longitudinally and periodically tested over approximately an 18-month time span; the mental developmental quotients (DQs) at the 22 month-old testing interval averaged 96 for the program infants and 88 for the control infants. Follow-up data were collected on previous graduates. At ages three and four years, the IQ scores of the control infants ranged from 76 to 109, while the scores for program infants ranged from 85 to 128. The follow-up IQ scores for a group of 20 program infants showed a net gain of 2.6 IQ points between their age 3 test (IQ=99.25) and age 4 test (IQ=101.85). Comparable follow-up of 12 control subjects showed a net decline of 4.33 IQ points between the two time spans (from 89.75 to 85.42). These group differences were statistically significant. Since these changes in IQ occurred after graduation, it was assumed by program sponsors that at least part of the effect was attributable to differences in ways the program and control mothers interacted with their children.

The group differences may be conservative estimates of what is yet to come when the present participants are subsequently studied. These older graduates were in the PCDC program only from 12 to 24 months, whereas, present participants are enrolled for 33 months. Further, the intervention program of the older graduates has been refined.

A second major hypothesis was that program infants, relative to control infants, would more readily explore and interact with features of their physical and social environment. In a direct behavioral test with infants in their second year of life, it was found that the incidence of vocalizing and smiling behavior by infants directly to their mothers in a play setting was consistently higher for program than control infants. Additionally, the frequency and duration of playing with freely available toys and talking while playing with those toys were also higher for program infants. These group differences generally persisted when strange social and nonsocial events were presented and subsequently removed from the play situation.

Further evidence suggested that the PCDC program facilitates the process of the infant's social attachment to his mother. According to attachment theorists, once an infant is past the period of peak attachment he is likely to search the novel environment and act more independently than an infant highly reliant on his mother's constant presence and supervision. The behavioral support for the formation of earlier maternal attachments by program infants derives from developmental analyses during the first year of life of the infant's differential search and protest reactions to a situation involving brief separation from his mother and his reaction to the presence of an unfamiliar female adult. Greater search and protest behavior was evidenced by program infants relative to control infants. This difference was most notable at the 7-1/2 to 11-1/2 months testing times, a time span cited by attachment theorists as one correlated with the process of attachment formulation.

Attachment theory also advises that once the child is past the age of peak attachment, protest behavior is not likely to be as intense upon brief maternal separation. Results from maternal interview data taken during the infant's second year of life partly supported this contention for the program children. The normal developmental decline in protest behavior in situations involving the mother's brief absence or temporary care with a stranger was reported by the program mothers. The developmental pattern reported for control infants, however, was irregular. Direct behavioral observation of the 24 month-old child's reaction to brief maternal loss also demonstrated that the program infants had greater tolerance for potential social stress than control infants.

Effects on the mothers: The general goal for the mother enrolled in the Birmingham PCDC is to help her learn and utilize techniques to cope with the general demands upon her as both an adult and as a facilitator of her child's development. Three classes of data were collected on maternal changes: informational, attitudinal, and behavioral. At this stage of program development and evaluation, hypothesized differences related to participation in the program are being supported.

The evidence suggests that program mothers are acquiring and using functional information. More program mothers than control mothers are passing their GED exams and a number are presently studying for future exams. Several program mothers have received Red Cross First Aid certification and more program mothers report the ability to operate sewing machines, indicating increasing acquisition of skills. Program sponsors consider that specific skills acquired may not be as important as the fact that the mothers are voluntarily attempting to gain new skills. Both the seeking of new skills and the accompanying success are seen as important foundations for the mothers' self-reliance and for changes in interactions with other adults.

A number of observed attitudinal changes were considered by the sponsors also to support achievement by the program mothers of learning and utilizing techniques to cope with the demands on her. The program mothers are becoming somewhat more self-sufficient, confident, and flexible in their orientation to other members of their family and are being more socially responsive and sensitive to their child.

As the sample sizes are reaching respectable levels for the Parental Attitude Research Instrument (PARI) over the first two years of program participation, a number of scales are indicating attitude changes. Of the 43 scales examined, 10 indicated differences in favor of the program group and none in favor of the control group. These scales were grouped into four categories.

There were large differences on the "Acceleration of Development" and "Children Should be Toilet Trained as Soon as Possible" scales. Program mothers increased in their rejection of items stating that toilet training and weaning should be accomplished either by a specific age or as soon as possible. This change was interpreted by program sponsors as an indication that the program mothers were adopting an individual difference perspective with respect to child development.

Changes on the "Inconsiderateness of the Husband" and "Blame the Husband" scales suggested that program mothers were becoming less critical of husbands and less resigned to marital conflict. These findings were seen as evidence that changes in adult-adult relations, which were an emphasis of the Birmingham PCDC curriculum, were also occurring in the homes. This occurred despite the deliberate exclusion of specific curriculum material related to the husband-wife dyad.

The third category concerns the emphasis in the adult-adult curriculum on reducing the reliance upon power in relationships. Four scales were relevant to this classification--"Deification of Parents", "Parents Deserve Loyalty and Respect", "Children should Verbalize", and "Avoidance of Communication". Responses to all four scales indicated that the program mothers were becoming more comfortable with their children's questioning of their authority and less receptive to statements that parents should be given unquestioning respect and obedience by their children.

Changes on the "Repression of Aggression" scale were viewed by sponsors as evidence of increasing acceptance by parents of "non-socially approved" feelings in their children. Changes were also considered as further evidence of a reluctance of the program mothers to set absolute rules for their children.

On the behavioral level, program mothers exhibited a higher incidence of social responsiveness and sensitivity to their child in a play setting which contained social and nonsocial components as well as a brief separation from the child. To the disruptive aspects, program mothers, more so than controls, expressed themselves behaviorally by comforting the child physically and engaging in socially appropriate behaviors, especially to older age children. The group differences that appeared during the mother-child interaction sequence almost always favored the program mothers over the control mothers by traditional yardsticks of maternally appropriate behaviors.

There were strong indications that program infants more readily adapted to unfamiliar settings and were less affected by relatively enduring physical distractions. Older program infants (18 and 24 months old) adjusted to playroom settings much earlier than control infants: they looked about the

room less often, and displayed more maternal socializing behaviors (touching, smiling, and playing with the mother) than the controls. When an unfamiliar stranger entered the playroom, the play behaviors of both groups of infants was disrupted; but the control infants had a harder time returning to their former level of sustained play during times of the stranger's presence and subsequent absence. The same inability to resume play was seen in control infants when a prearranged nonsocial event disrupted the play pattern.

The data accumulated and analyzed to date provide support for the superior cognitive and social-emotional development of program infants relative to control infants. Such results represent an earlier payoff than program sponsors anticipated, since the PCDC program is designed primarily to effect mothers who will, in turn, provide beneficial experiences for their children.

Effects on mother/child interactions: The goals of the Birmingham PCDC include increasing both the amount of interaction by mother/child dyads and the quality of such interactions. The qualitative changes are expected to be toward mutually sensitive and responsive relationships. Attitudinal and behavioral data were used to measure these types of changes. It was assumed that certain attitudes would facilitate beneficial interactions as well as increase the likelihood that these interactions would continue outside the center setting.

Attitudinal data indicated that program mothers were potentially more sensitive to their children. The program mothers appeared to pay less attention to categorizing (e.g., 10-month-old male) when thinking about their child and to be more influenced by the individual characteristics of their child. They agreed less with dogmatic statements such as "A child should be toilet trained by 18 months of age." Also, there was a tendency for them to agree less strongly with PARI items concerning the necessity for a child giving his parents absolute loyalty and respect. Such differences were interpreted as program mothers being oriented toward the specific needs of their children with less emphasis on cultural or "textbook" norms.

In direct observations of mother-child interactions, both mothers and children in the program group seemed to be more at ease with each other than did the respective members of the control group. For example, in a play situation where both members are present, program mothers and children engaged in a greater range and depth of social behaviors that did control mothers and children. The program mothers showed a higher frequency of looking, smiling and vocalizing at their child than did the less interacting control mothers. In return program infants played further away from their mother and vocalized both to her and to their play objects with a higher incidence. In accord with attachment theory, this greater tendency by the program children to play actively and freely at some distance from the mother may be reflective of the program mothers being strong and stable attachment figures. The program mothers appear to provide their children with a stable base of operations from which the child sees fit to explore and manipulate an unfamiliar surrounding, which at times, has included unfamiliar play objects, an unfamiliar person, and a strange sound. These data indicated greater quantity and better quality of interactions by program mothers and children during nonstressed, but unfamiliar, conditions.

Similar findings were obtained during stressed conditions. Although program children, relative to control children, do not appear to be more upset over the mother's absence, the program mothers appeared to make up for their absence by interacting in more socially appropriate ways to calm down their distraught child.

The data from the Birmingham Parent-Child Development Center are incomplete: all subjects participating have not yet been tested nor have many subjects been tested after participating in the full three-year program. At this point, the data are positive, if sketchy. In terms of standardized tests, program children are performing at normal level, at the same time that control children apparently begin to drop. Follow-up testing is planned as part of future evaluation, and the results will be essential for testing the hypothesis of increasing experimental/control differences with time.

Performance on standardized intelligence tests is not the principle focus of the evaluation, however. The measures chosen, such as the observation of mother/child interaction in separation and play situations, reflect the program's concern with the development of positive mother/child relationships. These relationships are considered to be the basis for the development of the child's ability to cope with later demands from school, job, family, etc. Data from these measures are more suggestive than unequivocal at this point, but program mother/child pairs were consistently judged to have more positive interactions and stronger attachment. Observations of the mothers and infants in both stressful and non-stressful play situations in general indicated greater quantity and better quality of mother/child interaction by program mothers and children. Program mothers and children engaged in a greater range and depth of social behaviors than did the control mothers and children. The children's behavior suggested that the program mothers, to a greater degree than control mothers, were providing their children with a stable base of operations from which the children felt free to explore and manipulate at some distance from their mothers. Program sponsors felt that the data taken collectively indicated that the program mothers were functioning as strong, stable attachment figures for their children. The future evaluation efforts will have to not only continue to confirm the advantages seen thus far in program families but also show how the development of strong mother/child relationships, specific parental attitudes, and qualitatively different interaction contribute to the children's performance in school situations.

THE PARENT/CHILD COURSE

Program Contact: Nicholas Rayder

The Parent/Child Course, in operation since 1969, was one component of the Responsive Model educational program designed by Far West Laboratory, Berkeley, California. This component was a parent-training course aimed at families with three- and four-year-old children. The course focused on parent/child interactions. Parents were given training in ways of interacting with their child at home, using toys and games, to stimulate the child's intellectual and attitudinal growth. The other two components of the Responsive Model were a model Head Start program for three- to five- year-olds and a Follow-Through program for three- to nine-year-olds. The Parent/Child Course was designed to operate either in conjunction with in-school classroom components or as an independent program for families with no preschool involvement.

The course was not strictly aimed at low-income families. The four field tests have involved different income groups: in East Palo Alto, California, with low-income families; in Berkeley with middle-income families, and twice in Salt Lake City, with both low- and middle-income families. In all cases, the Parent/Child Course ran for ten weeks. Recruitment of the families was through publicity efforts in the communities, such as notices in the local newspaper, announcements through the schools, and contacts made by community people. The program sponsors noted that the parents who did become involved in the course were the ones who were already interested in and motivated to do something about their child's development.

Program sponsors did not operate the Parent/Child Course within an experimental framework. Rather, they considered the program to be developmental in nature, with the parents and children in the program being part of the development, not part of an experiment in which they were the subjects. As a consequence of this approach, control groups were not formed.

Program Goals

For the children: In general, the goals were intellectual growth and development (or maintenance) of a healthy self-concept. Intellectual growth was defined in terms of (1) the acquisition of a set of foundation concepts, such as numbers, which were seen as critical for later intellectual development and success in school; and (2) mastery of problem-solving skills for a variety of situations. A strong positive self-concept was considered essential, especially in relation to school and home learning. This concept was seen as involving the child's feeling competent and feeling that others, especially parents, thought him capable.

For the parents: In terms of attitudes, program goals were (1) for parents to feel competent about teaching their children what they felt was important; (2) for parents to have a greater feeling of power in influencing their child's education; and (3) for parents to be more aware of

their child's capabilities and needs. In terms of parent behaviors, the program goal was an increase in the number and variety of ways parents interacted with their child, ways that would be responsive to the child and intellectually stimulating.

Assumptions

The Parent/Child Course sponsors did not make explicit assumptions about the possible detrimental effects of low-income homes in particular. Their assumptions centered around parent/child relationships, regardless of income. Parents were considered to be the most important teachers in a child's life; educational efforts should consequently be aimed at increasing parents' effectiveness. It was felt that the home should be a learning place for a child, with parents aware of their abilities and responsibilities as teachers.

No one theory of learning underlay the Parent/Child Course. Instead there was a set of learning principles that guided the course. For one, learning was recognized as being dependent on the level of maturation of a child. Second, reinforcement and feedback were seen as powerful factors determining what is learned. Self-initiated and self-rewarding learning were emphasized as optimal. Individual differences in learning were related to differences among children in effectiveness of various types of reinforcement. It was assumed that learning should be pleasant for children.

How the Program Worked

The efforts of the Parent/Child Course were focused on the parents. Groups of from 10 to 15 parents per teacher met weekly for two hours in a classroom setting, over a period of eight to ten weeks. The weekly sessions were broken into two parts. The first part involved the use of films, written materials, and discussions to inform parents about certain child development topics; other discussions centered around topics and issues raised by the parents. The second part of the sessions introduced an educational toy and its accompanying "learning episodes" for parents to use in facilitating their child's development. Each week the parents returned the previous week's "old" toy with their evaluation of it and received a new toy for the next week. Their responsibility during the week was to ask their child to play with them with the toy at least once a day for 20 minutes. At the end of the training period, an additional set of "loaner" toys was made available for parents to borrow.

The teachers in the course introduced the toys and techniques to the parents primarily through modeling (demonstration) and role-playing. Each toy was accompanied by learning episodes or procedures for ways to guide the child to learn the particular skill or solve the problem. The episodes usually consisted of one to three written pages, with illustrations, giving clear and specific instructions to the parents. Parents were to use the toys to promote interaction with their child and to transmit information and problem-solving skills. The toys and games were expected to (1) stimulate parent participation in the child's education at home and (2) help

in providing a situation where the child would initiate discovery/ exploratory learning behavior.

Distinctive Characteristics

In the Parent/Child Course, training efforts went entirely into the parents. The program did not intervene directly in the homes. Parents were given the total responsibility for using the toys and procedures at home with the children. Their active participation as teachers was essential to the program. The toys and learning episodes provided a structure or plan for parent/child interactions. Although parents did not participate in the development of program materials, program sponsors stated that during the training parents helped develop alternate techniques for teaching the concepts. The course combined parent education on principles of child development with training in ways for parents to increase their interactions with their children. Teaching methods seemed to be a combination of relatively direct teaching and methods, such as role-playing, which required active parent participation.

Hypotheses

The main hypothesis tested was that the children whose parents were involved in the Parent/Child Course would acquire the target skills and concepts that the toys were designed to teach. A secondary hypothesis was that the children would improve their self-concepts. Parent attitudes were also expected to change as a result of parent participation--toward feeling more competent and confident in teaching, and powerful in decision-making.

Results

The experimental design chosen to evaluate changes in the children was "single-group design with replication." Two distinct groups were put through the Parent/Child Course and measured independently. There were no control groups for assessing the amount of change occurring due to non-treatment factors, such as chronological age changes. The sponsors wanted to avoid an experimental approach, plus they felt that the shortness of the training period decreased the likelihood of significant intellectual changes due to age alone.

Two kinds of data were collected for evaluating the course--parent questionnaires and children's test scores on the Responsive Test. This test was developed by the program sponsors. It consisted of 13 subtests investigating specific content areas such as color matching, color naming, color identification, shape matching, shape naming, and shape identification, letter recognition, and numerical and relational concepts. Some items on the test were unrelated to the specific skills taught by the toys; they were included as an "internal control" to assess the effects of maturity as opposed to the effects of training.

The parent questionnaires were answered by East Palo Alto and Salt Lake City parents. Responses indicated that in terms of parental feelings of competence and understanding and recognition of children's capabilities, the Parent/Child Course had achieved its goals. There were few statements from parents contrary to program objectives in these areas. (No statistical analysis of changes in parent attitudes was mentioned.) Parents' comments did not indicate an increase in their feeling of power to influence decisions affecting the education of their children. Parents' attendance at the training sessions was reported to be high, which was considered an indication of program success.

No measures were taken of parents' home teaching behaviors. Whether or not parents actually used the toys and procedures or altered their home interactions was answered only by inference from children's test scores. Where loaner toys were made available after training, between 20 and 30 percent of the parents made use of them. (There were a number of factors determining parent use, such as distance from toy library to parent's homes.)

Test scores for the children came from two groups in Salt Lake City--about 15 children in each group. Pre- and post-test results were obtained on the Responsive Test. Nineteen children were available for both pre- and post-testing. The children from the two sites showed very similar test results, despite the fact that one group was middle-income and the other, low-income. The similar performance of the groups was seen as evidence that the gains could be attributed to treatment factors rather than to non-treatment factors peculiar to one group of children or parents. No child in either group showed any significant change on the two subtests dealing with concepts not taught by any of the learning episodes. On the other hand, on nine of the remaining eleven subtests, the program children made significant gains from pre- to post-test. The final two subtests were initially quite easy for the children, so gain scores were not possible. These results were taken as support for the hypothesis that specific changes in the children's conceptual development would occur, related to the kinds of things emphasized in the learning episodes. The children did increase in their conceptual competence.

In terms of stimulating the children's general intellectual abilities, three subtests were examined, dealing with language development and problem-solving skills. On two out of the three, the children showed significant gains.

The children were not tested for changes in self-concept because program sponsors felt there was no adequate instrument available.

In terms of the program's goals, there was positive evidence for all goals except increasing the children's self-concepts and the parents' feeling of power as decision-makers. In the first case, no measurement was undertaken. The antecedent events hypothesized by program sponsors to contribute to a better self-concept (e.g., children feeling competent, parents feeling competent), were indicated as occurring as a result of the program. The goal of improved self-concept was stated as a central concern of the program. Consequently, it would seem valuable to have some measure of the program's effectiveness in this area.

In the case of parents as decision-makers, it was not completely clear what aspect of the parents' participation was thought to contribute to a sense of power. If parents who feel more confident as teachers are expected to have an increased sense of power in educational decisions, then this change in attitude might be predicted to occur as a result of the Course, and the absence of change is unexpected. If sponsors believe that the parents' sense of power as decision-makers would increase as a result of their being encouraged to make decisions about their children's education, it seems less likely that the program would produce such an attitude change. The Parent/Child Course may not have sufficiently encouraged parents to assume the role of decision-maker in choosing content and procedures for home teaching. It was hoped that parents would formulate their own educational objectives and procedures, but whether this goal was made explicit to them or was implemented in the training, the program reports did not make clear.

The choice of evaluation methods makes it difficult to make definitive statements about program effects. The questionnaire responses were consistently positive, but they did not offer much information on what parents were doing with their children. The children's test scores showed consistently significant gains, but a mastery test of the program's curriculum does not offer information on whether the children's gains were related to more general intellectual and academic goals, like school success. It would be helpful to have follow-up information on whether parents continued to work with their children, and if they initiated their own ideas and lessons.

The design of the Course has a number of economic advantages and the level of program success which has thus far been indicated would encourage future operation of the Course. The program's goal of parents formulating their own educational goals and feeling competent to teach them is oriented toward greater parent power and independence from professionals. If the program's success in this goal can be shown adequately, it will be crucial evidence for the value of this program.

MOTHERS TRAINING PROGRAM

Program Director: Merle Karnes

Karnes and her associates in Illinois-- J. Teska, E. Badger, W. Wright, A. Hodgins--developed an experimental program for training low-income mothers to be tutors of their own children, in order to provide the children with a more stimulating home environment and basic preschool skills. The training program was first carried out with 30 mothers of three- and four-year-olds. The program (reported in 1968) lasted for 12 weeks. The training program was then used with mothers of one- and two-year-old children. Families participated for two years; the parent training operated over 15 months during this time period.

All the families in the program were low-income and most were black. They were recruited through (1) recommendations by a school principal about the most needy families in the district; (2) names drawn from the roles of the Public Health Department and the office of A.D.C.; (3) canvassing acutely disadvantaged neighborhoods by an interviewer trying to locate families not on the roles. Families who fit the income and child-age requirements were invited to join the program. They were told that mothers would be paid to attend group meetings once a week for two hours, that mothers would be asked to apply teaching techniques learned in group meetings at home without pay, and that the children would be tested at the end of the program to see how successful the mothers had been as teachers. Karnes points out that these initial requirements may have biased the sampling of mothers, in that those who joined may have had more motivation for improving their teaching skills. In the first field test, an experimental and a control group were formed by random assignment, after matching the children in age, sex, IQ, and family background. In the second test of the program, no control group was formed.

Goals of the Program

For the children: The program staff wanted to increase the general and verbal intelligence of the child and to prepare them to be better learners in school by increasing their motivation to learn, their attention span, and their work habits.

For the parents: The goals for parents were to become conscious teachers of their own children, especially by increasing their verbal interaction; to provide a more stimulating, ordered, nurturing environment in which their child could develop; to acquire a better understanding of child development and to learn ways to stimulate more effectively the child's cognitive and language development. It was hoped that parents would develop a new sense of responsibility for their child's educational needs and for themselves as parents. An increase in the parents' feelings of self-worth was seen as prerequisite for achieving these goals.

Assumptions

This intervention was based on the assumption that intellectual deficits accrue from a lack of "appropriate experiences conducive to fostering subsequent optimal growth." The disadvantaged home was characterized as offering both a severely limited range of experiences to children and poor stimulation of perceptual, intellectual, and language development. The language patterns or "cognitive style" of these homes were considered especially crucial in the children's subsequent development. Learning problems growing out of these environmental variables were seen as potentially irreversible, if not attacked early enough, e.g., by preschool age.

The program sponsors assumed it was important to involve parents in the learning process, as a way of implementing effective environmental changes. It was thought that disadvantaged mothers wanted to and could change their lives in ways that would benefit their child.

How the Program Worked

Changes in the children were to be effected through parent training. Mothers were trained to work at home with their child, with an emphasis on the quality and quantity of mother/child verbal interaction. The program focused on the parent/teacher interaction; the teachers did not teach the children. Once a week parents attended a group meeting for two hours. Experienced teachers directed the mothers in both mother-centered and child-centered activities. The mother-centered activities were group discussions, led by teachers, which were directed at child-rearing problems. The goal was minimal leader participation with much mother-initiated dialogue. Role-playing was used to stimulate discussion. Mothers were asked to learn new attitudes toward and facts about children; for example, they were urged to consider children's own needs and changing abilities, in order to become more understanding of and responsive to their child. Discussions were also instigated on changing negative circumstances of the mothers' lives. The general purposes of the discussions were to increase the mothers' sense of responsibility for themselves, their families, and the community and to develop a positive relationship between parents and school authority figures in order to reduce the parents' distrust.

Child-centered activities were the most important part of the group meetings. There was strong leader participation by highly trained, skilled professionals. Mothers were presented with educational toys or materials which they constructed in the meeting and, along with each toy, an "appropriate teaching model." The teachers, through demonstration and role-playing, showed the mothers how to use the toys to encourage language interaction with their children. The toys were introduced in a developmental order so that the individual toy would match a child's changing needs. During the first year, the toys were selected with an emphasis on sensory-motor development and on the development of concepts of space, size, and shape (e.g., blocks, beads, nesting cups, pounding bench.) For the second year program, there was a greater emphasis on books and on stimulating language development and abstract thinking. The principles of teaching

presented to the parents were (1) developing a good working relationship with the child, based on mutual respect, to ensure effective teaching; (2) being positive--offering praise, minimizing criticism; (3) breaking a new task into separate steps for the child and repeating things with the child; (4) thinking of learning as fun. Some of the same teaching methods, such as repetition and emphasis on mutual respect, were used by the professional teachers with the mothers. The methods used in teaching the parents were reported to be inductive rather than prescriptive; i.e., teachers asked questions and let the mothers discuss the answers. It is hard to know how nondidactic the sessions were, since strong leader participation was stressed in the program report as well as the inductive style of teaching.

The group meetings were believed by program planners to offer distinct advantages over individual teacher/parent sessions. It was felt that mothers brought together in a supportive and self-evaluating group would reinforce each other's changes.

During the week between group meetings, mothers were asked to work with their child in activities based on the toys and to keep checklists on the child's progress. The staff members made semi-monthly home visits to observe each mother acting with her child. In these visits, the staff reinforced the teaching principles and offered suggestions for ways to establish better working relationships between mothers and children.

In the program with the one- and two-year-olds, a new emphasis was added during the second year. The mothers were encouraged to take over more responsibility for the group meetings--leading the meetings, keeping the records, presenting their own contributions. There was also more emphasis on community involvement for the mothers. The training of indigenous leadership was a goal that became more central as the program continued.

Distinctive Characteristics

An essential consideration of this program was that mothers were the primary teachers of their own children, actualized through (1) recognition of mothers as members of a team along with the professional teachers, and (2) an active involvement of the mothers in the training in other than a lecture format. Having mothers develop the materials themselves gave them an active role and encouraged a better understanding of the materials. The educational toys also provided a structure for the verbal interaction between mothers and children in the homes. Specific instruction was given to mothers in their home teaching behavior. The project combined group training of mothers with individual home visits. There was no supplementary program for the children--the stress was on working with the mothers in order to change the home environment.

Main Hypotheses

It was hypothesized that helping mothers to stimulate the growth of their preschool child more effectively would be reflected in the child's

increased performance on standardized tests of intellectual and linguistic development.

Results

First Field Test: Evaluation of the first Mothers' Training Program was done through comparisons of program children with the matched control group. Two groups were compared: a full treatment group (E) and a no-intervention group (C).

This first program, with three- and four-year-olds, lasted 12 weeks. Pre- and post-testing was done over three months. Children were measured on the Stanford-Binet and the ITPA. On the general intelligence tests, only the experimental group manifested a greater increase in mental age than was expected on the basis of increased chronological age. The E group made a mean gain of 7.46 points, while the C group gained .07 points. There was a significant difference between these two gains. On the ITPA, nine subtests were included. At pre-testing, E group means were somewhat lower than C means. By post-testing, the E group mean scores were greater than or equal to the C group's on eight out of nine subtests. On three of these, the E group was significantly superior to the C group. At pre-testing, the E group had scored seven months below their chronological age expectancy and the C group had scored three months below; by post-testing, the E group had reduced this discrepancy by five months while the C group discrepancy had increased by one month.

The results indicated significant improvement in cognitive performance and some language growth in children whose mothers were involved in the special training program. The gains were not large, but the program was short in duration. Follow-up data would be valuable to assess the stability of the gains.

Second Field Test: Twenty mother/child pairs were involved in the second test of the training program. Fifteen of these pairs remained in the program for the second year. No control group was maintained, but there were two comparison groups. One was made up of 15 children of similar age and background characteristics chosen from another project. The second comparison group was formed of the target children's older siblings, who had been previously tested at the same chronological age as the target children. This group acted as a control for the effects of differing maternal notivation. Since the same mothers were involved in both the experimental and second comparison groups, differences in child performance scores could be more readily attributed to effects of the intervention.

Post-test scores were obtained after 15 months of treatment. When compared to the matched comparison group, the E group children made significantly greater gains on the Stanford-Binet. The difference in gain between the E and comparison group was 16 points. On the ITPA, the E group closely followed their mean chronological age expectancy while the matched comparison group had fallen six months below their expectancy. The E group showed even greater differences from their siblings with respect to intellectual functioning and language development. On the Stanford-Binet, the E group mean score was 28 points higher than the sibling mean score. This was a significant difference. On the ITPA, the E group was superior to the siblings, although the difference did not quite reach statistical significance.

difference. On the ITPA, the E group was superior to the siblings, although the difference did not quite reach statistical significance.

The changes observed in the experimental group children were taken as evidence of changes in the attitudes and practices of the mothers, although no testing of the mothers was conducted. Program reports stated that the training program effected far-reaching changes in the lives of the families involved. The indices of change were: increased involvement in community activities, moving out of housing developments, and acquisition of new jobs. Also, attendance by the 15 mothers who participated for two years was greater than 80 percent, indicating interest and commitment. The five mothers who dropped out had about 60 percent attendance.

Children whose mothers participated in two years of training outgained children in the previous test where mothers participated for one year only. The superiority of two years of training could indicate that the training was effective. Focused mother/child interaction seemed to be related to the children's intellectual gains. However, there were other differences between the two-year and one-year test that might have influenced the children's gains. For instance, the children in the two tests of the training were different ages. A third study by Karnes helps to separate the effects of these variables.

In 1969, Karnes tested a "combination" intervention program with both the mothers' training component and a structured preschool program for four-year-olds. The mothers of a group of four-year-olds entering the preschool program were entered into the mothers' program. The goals of the combination project were similar to the earlier Mothers Training Program, although the importance of the parent component in the intervention effort was decreased. Changes were made in the parent program, e.g., fewer home visits were made to the individual mothers, and they were no longer asked to keep checklists on the children's progress at home, since the teachers would have an idea of the children's progress from their school contact.

The purpose of the home visits shifted from reinforcing the mothers and monitoring their use of the teaching techniques to the delivery of materials to mothers, and informing them of their child's progress in the classroom. These changes, along with the dual parent/child emphasis, probably significantly changed the focus of the intervention efforts, as was recognized by the program directors in retrospect. Although both the original Mothers Training Program and the combination program were based on a belief in the mothers' primary responsibility as teachers of their own children, the combination program did not reflect this in its design. Mothers might not have felt that they were the target of the program efforts or that they were considered primarily responsible for the program's success.

The evaluation of two years of the combination program showed that the control group actually made a higher mean gain than the experimental group. The control group gained 14 points, and the experimental group gained

12 points. There was no significant difference between the two. On the ITPA test of verbal intelligence, the control group scored significantly higher. Karnes attributed the poor performance of the treatment group to a decrease in the mothers active involvement in the program. Mothers might have perceived their level of responsibility in the total effort as being reduced. Karnes used attendance records to make this point: only 50 percent of the mothers attended any one meeting, versus 80 percent in the previous tests of the training program. Also, at the end of the study, mothers indicated that they did not become very involved in their children's use of the toys at home. This could explain why children in this combined treatment scored below children in previous tests whose mothers were in the Mothers Training Program alone. It does not explain why the E group did no differently from the control group. Combining the two components actually seemed to diminish the immediate effectiveness of either component.

The combined treatment experiment, however, did suggest which variables in the Mothers Training Program might be important: the concentration of efforts on the mothers, the home visits, the amount of responsibility mothers were made to feel for the success of the program. Since several changes were made in the program under the combined treatment, there is no better way to define the crucial variables at this point. As Bronfenbrenner (1974) indicated, the data from this combination program underlined the complex motivational variables at work which influence the effectiveness of an intervention project.

HOME-ORIENTED PRESCHOOL EDUCATION PROJECT (HOPE)

Program Director: Appalachia Educational Laboratory

The Appalachia Educational Laboratory (AEL) developed an early childhood education program for rural, isolated Appalachian families. Their intervention program was named HOPE--Home-Oriented Preschool Education. The program combined televised instruction, home visitation to parents and children, and group instruction in a mobile classroom. The program ran nine months a year, concurrent with the school year. HOPE was aimed at three-, four, and five-year-olds and their parents; the target population thus far has been isolated rural families. HOPE has undergone three years of field testing in southern West Virginia, 1968-1971. The program has been tested since 1971 in four demonstration sites in Virginia, West Virginia, and Tennessee. Nearly 1,000 children have been involved at the different sites since the program began.

Families for the sample were first identified through surveys of target territories. Families with preschool children were asked whether they wanted their children to participate, and from those parents who agreed, a sample was selected. Respecting the parents' right to refuse to participate might have produced a subject population that was more highly motivated. Recruitment through direct contact, however, might have functioned to reach families that ordinarily would not enroll their children. Families were assigned to one of three different experimental groups. Control (no treatment) groups were formed independently, but were matched on age, sex, IQ, and economic level.

Program Goals

For children: The program directors wanted to improve the children's verbal, sensorimotor, and linguistic performance in readiness for public school.

For parents: The program was designed to help parents become more involved in their child's education. Its aim was to make the parents better teachers of their own child by altering the quality and quantity of parent/child interactions in the home.

Assumptions

The assumption of the program was that rural, isolated children were not adequately prepared for school experiences and consequently did poorly in school. Assumptions about the specific causes of the deficits were not made explicit.

A second assumption was that the early years of development were critical in subsequent intellectual, linguistic, and sensorimotor performance. Consequently, intervention during early years was considered to have optimal potential for effectively supplementing home preparation.

How the Program Worked

HOPE had three complementary components. The first was televised instruction. All children in the program watched a daily half-hour show, "Around the Bend," produced by AEL. The shows were designed to interest the children and to motivate them to learn. Each lesson had a number of specific educational behavioral objectives, with particular emphasis on basic skill instruction such as counting. The shows were planned so as to actively involve the child in learning while watching. Parents were also encouraged to watch with their child. The television was considered to offer parents an opportunity for observing the instruction of their child by trained adults.

The second component was home visitation. Weekly, a paraprofessional home visitor visited each home to talk with the child and his parents. The home visitor brought along (1) materials coordinated with the televised instruction for that week which would focus the parents on the educational goals in the television lesson and (2) parent guide sheets, which offered suggestions to parents for stimulating parent/child interaction to accompany the weekly lessons. Weekly home assignments were also given. The visitor explained to parents the theme of the coming week's television programs and discussed the materials from the home that the child would need for participation. The home visitor was a model for parents of an adult interested in children's learning and development. On the day the home visitor came to see a particular family, she watched the daily television episode with the children and parents.

The third component was the mobile classroom. Weekly visits were made by the classroom to different geographical areas. The ten to fifteen children living nearby attended the classes. For an hour and a half, trained teachers offered the children group instruction in activities which complemented and repeated the television and home curriculum objectives. The mobile classroom component was seen as providing important social experiences for the children, which were particularly crucial for the development of interpersonal skills and necessary for later school success.

Distinctive Characteristics

HOPE offered three different kinds of intervention, each designed to remedy potential deficits in a specific area: cognitive and motor development, parent/child interaction, or social skills. HOPE sponsors felt that one form of intervention would not be effective in producing improvements in all three areas. Parents in the program were approached as partners with the professional teachers in efforts to teach their child. They were encouraged to work with their child during and after the television programs. However, parents were not put in the position of having primary responsibility for the effectiveness of the intervention, nor was home involvement the only focus of the program. The parents were approached as important figures in the child's life who needed to be encouraged to show interest in the child and to be shown how to work effectively with him. The home visitor was in the position of an expert advising the parents.

Hypotheses

The children in the program were expected to show significant gains in prereading skills (perceptual-motor skills especially), in verbal IQ, and in the specific content areas stressed by the curriculum. It was also hypothesized that each of the three different components would contribute to certain areas in particular; children who received only a partial combination of the components would perform less well than the children who received all the components.

Results

Reports were available from three years of field-testing of HOPE, beginning in 1968-1969. Each of the experimental groups included around 190 children. The 1969-1970 control group included 60 children, the 1970-1971 control group, 120. Over the three years, the results were increasingly positive, due possibly to an increasing refinement of the program or to an increasing number of children in the program for more than a single year. Four groups were formed for the evaluation comparisons: TV-HV-MC received all three forms of intervention; TV-HV received the televised programs and the home visitor; TV received only the televised programs; the control group received none of the intervention.

Cognitive growth was measured by the Appalachia Preschool Test (APT), a test constructed to assess the specific cognitive objectives of the program curriculum. In the first year's evaluation, the two groups receiving home visits (TV-HV and TV-HV-MC) were significantly superior to the TV-only and the control groups. In the later evaluations, this pattern was maintained, with larger differences between treatment groups and the control group. By the third year, treatment children were shown to achieve substantially more cognitive objectives than did control children. After the field testing, the HOPE program was used at four demonstration sites. The same pattern of results occurred. Treatment children at one of the demonstration sites significantly outscored treatment groups at the other sites on the APT. The superior demonstration project was found to offer the most in the way of auxiliary services, such as medical care and clothing, and in encouraging families to watch "Sesame Street" together. In general, the evaluations indicated that the home visits were most influential in increasing post-test APT scores. The addition of the mobile classroom component did not significantly increase the children's scores over their level in the TV-HV group.

The PPVT administered during each year's evaluation demonstrated a similar pattern, with TV-HV and TV-HV-MC groups scoring higher than the TV-only and control groups. Each year, the TV-HV and TV-HV-MC groups scored near the national norm. These results supported the conclusion that the home visits--paraprofessional plus materials--were most strongly associated with cognitive gains.

Motor coordination and perceptual learning were measured by the Frosting Test of Perceptual Development. These skills were measured because they were considered to be important prereading skills. In each year's evaluation, the three treatment groups scored significantly higher

than the control group on four out of the five subtests and the total score. On only one subtest did the home visit component add to the effect of the television, and there was no added effect attributable to the mobile classroom. It appeared that the television component had the major effect on these prereading skills. It is not clear whether it was the content of the TV programs or the perceptual stimulation that improved skills like eye-motor coordination and ability to deal with spatial rotation.

The ITPA was also administered. In the first year's evaluation, all four groups of children, including controls, showed significant gains on nine out of ten subtests. All the treatment groups scored at or above national norms on nine out of ten subtests. There were few statistically significant treatment effects but there was a consistent trend toward increasingly high scores for children receiving more of the program components. By the third year of the evaluation, there were signficant differences on three subtests favoring the three treatment groups over the control group.

Social skills were assessed to measure the effectiveness of the mobile classroom. Measurement involved observation of video-tapes of children's interactions around a toy (model house or train). In the first year's evaluation, there was "strong indication" that the mobile classroom contributed to the development of social skills such as verbalizing, initiative, enthusiasm, less withdrawal behavior. The three-year-olds (the youngest group) showed the strongest effect. In the first two years' evaluations, the mobile classroom failed to make a significant difference in cognitive language, or psychomotor areas. This led to an expansion of the amount of time children spent weekly in the classroom and to the development of improved methods for measuring social skills. Post-tests after the third year indicated that the general pattern of differences, from greatest to least social skills development, was TV-HV-MC, TV-HV, TV only. Participation in the mobile classroom had the major effect, with a lesser effect of the home visitation. Children were especially observed for their curiosity, and the mobile classroom and home visits were both associated with children's gains.

By the time of the third year evaluation, 111 five-year-olds had been in HOPE for three years. They were compared to 66 local children who had attended public kindergarten and to 34 control five-year-olds who had received no formal education. On the various subtests of the APT, the usual order of scores showed the TV-HV-MC and TV-HV HOPE groups were significantly superior to the control five-year-olds on all subtests. The public kindergartners, control five-year-olds, and the TV-only HOPE groups performed similarly. The fact the HOPE children outscored kindergartners was seen by AEL sponsors as extremely important in demonstrating the effectiveness of the HOPE program in achieving the specific objectives of the curriculum.

Parents were asked to fill out weekly questionnaires on their attitudes toward HOPE. Attitudes were highly positive, with few differences

among parents in the three treatment groups. When rating the AEL television program "Around the Bend" in comparison with other commercial children's television programs, the AEL program was rated as good or better than the others, with a majority of parents rating "Around the Bend" highest; 70-90 percent of the parents reported watching it with their children. (This result is interesting in light of the evaluation of "Sesame Street," which showed that the children who gained the most from "Sesame Street" were the ones who watched with their parents.) The great majority (90 percent) of parents felt that their children learned from the television show and encouraged their children to watch it.

All of the children's test scores were combined in a factor analysis, and three common factors emerged. On "Visual Identification," there were no significant differences between treatment groups. On "Psychomotor," the TV-HV group was highest, although not significantly different from the other two treatment conditions. On "Vocabulary," there were significant differences, with the order of means being TV-HC-MC, TV-HV, TV, and control.

Among the most valuable findings from this project was the information concerning the relative contributions of the different components to children's gains. The television programs appeared to have a major effect on perceptual-motor development and reading-readiness skills; the addition of the home visits and the mobile classroom did not add significantly to the children's performance on the Frostig. In terms of cognitive development and language growth, the home-visitor component seemed to be the most significant. The home-visitor was always combined with the televised programs, so there was no way to distinguish the effect of the home visits independent of the television curriculum. Also, it was not clear what about the home visits or the television programs caused the improvement in children's intellectual development. With the home visits, for instance, it might have been the attention paid to the families in a one-to-one relationship with the home visitor; it might have been the active parent involvement; or it might have been that the home visitor's reinforcement of the televised lessons maximized the effectiveness of those lessons. Parents were given weekly tasks to carry out, but they were not explicitly trained in ways of interacting with their child.

Certain skills apparently developed furthest within a group situation, the mobile classroom. This group experience, despite its emphasis on the same curriculum goals as the television shows and the home visits, did not seem to be highly influential in producing cognitive gains. There was some slight tendency for children who participated in the mobile classroom to do better on certain language measures, but this trend only began to show up during the third year.

Data will eventually be available on the subsequent school performance of treatment children and on behavioral changes in parents resulting from their participation. These data will be important in assessing the effectiveness of HOPE. HOPE has been successful in reaching its goals; up to this point, the level of gains has not been high, but the program has consistently produced significant gains in a number of different skill areas. There has

been positive evidence and immediate benefits; long-term effects have yet to be examined.

The three-pronged intervention was designed to cover a range of skills potentially important in school performance. The questions raised by this program concer the relative effectiveness of different kinds of treatments. The program design suggested which combinations of treatments were optional and which treatment components seemed to be related to different categories of gains. The design did not permit comparisons of the effectiveness of single versus multiple treatments. In the Early Child Stimulation through Parent Education Program (see pp. 59-67) a group of classes were initiated to follow a period of home visits, as a way of improving interpersonal skills in readiness for school. It would be interesting to compare the different <u>effects</u> of a simultaneous versus a sequential operation of treatments.

EARLY TRAINING PROJECT

Program Directors: Susan Gray and Rupert Klaus

This intervention program--one of the first and most innovative of its time--operated in Nashville from 1962-1965 as a preschool program for disadvantaged children designed to prevent "progressive retardation" and reducing the possibility of school failure. The summer program was a ten-week classroom experience for the children for four hours, five days a week. The winter program involved home visits by trained preschool teachers different than the classroom teachers to the mothers and children as a way to insure the continuation of supportive activities for the children during the nonschool months.

Sixty-one black children age three to four and a half were involved. They were selected by a house-to-house census of a low-income area. These children were assigned randomly (not matched) to three groups--two experimental and one control group. Twenty-seven black children of similar background from another town served as a distal control group. No reimbursement was offered to parents for enrolling.

Program Goals

For the children: Program sponsors hoped to intervene in the children's personal and cognitive development in order to improve the children's "educability"--the ability to utilize learning opportunities and direct their own learning. The program staff attempted to help children develop motivational patterns and attitudes toward education that were more adaptive to success in school. Increasing the sense of personal competence in children was also a goal. The program also was designed to provide children with basic intellectual skills--perceptual, conceptual, and linguistic.

For the parents: Program sponsors hoped to make parents more supportive of their child's education in the home and school. This included (a) a more active teaching role in the home and improved teaching techniques; (b) a greater awareness of and responsiveness to the child's developmental stages and changing needs; (c) more interest in the child's school activities. It was expected that parents would become more aware of their responsibilities in providing a stimulating environment for their child.

Assumptions

Conditions in low-income homes were assumed to affect adversely children's intellectual and personal development. Low-income children were thought to lack attitudes conducive to school success, such as achievement motivation, persistence, and delay of gratification. They were also assumed to lack basic cognitive skills. The external environment of low-income homes was assumed to be detrimental because of its lack of order and structure in the stimulation offered to children. As a consequence, children have difficulty attending to their environment and fail to develop information processing capabilities, concepts of time and space, etc. Children in this environment were not likely to develop feelings of success or control over their lives.

The interpersonal environment of low-income homes also were assumed to discourage development. The patterns of adult/child interaction do not encourage the child to ask questions or to use language. Exploration and initiative behaviors were not reinforced or were punished.

It was also assumed that these environmental problems could be overcome if attacked early and carefully. The original approach chosen was an intervention program that changed the children's environment by removing them from their homes to attend preschool in a stimulating, planned classroom environment.[1]

How the Program Worked

The preschool offered an enrichment program. The curriculum was not highly structured or based on a single theory of development. It was aimed at enhancing the environment of the children through various stimulating experiences. The classroom activities were organized to increase children's language skills and concept development; the activities gave the children opportunities to succeed and thus gain in self-confidence. The classroom environment was planned to encourage intellectual development and interest in learning and academic achievement.

During the summer program classes, home visitors acted as liaisons between parents and school, keeping the parents informed of school activities, arranging for parent visits, and suggesting things the parent might do in response to the child's communications about school. These visits emphasized the parent's role as an interested, supportive adult for the child. The visitors encouraged changes in the parent's attitudes that would be more reinforcing to the child's new school experiences.

During the winter months there was no preschool, but weekly home visits were made by black professional visitors as a "continuing supportive activity." These home visits were oriented toward both the child and the parents. The visits were planned as a way to continue the child's education during the winter and to influence the home environment by working with parents as change agents and teachers in their own homes. Home visitors worked to increase parents' awareness of expanding opportunities for blacks and changes they could make in their family's lifestyle. Families were given a subscription to Ebony. Parents were encouraged to feel that they had power to choose the kind of life they wanted for their family.

The home visitors also encouraged parents to assume greater responsibility for their child's early experiences by providing a more enriching environment, more learning opportunities, and better parent/child interaction. Home visitors assisted parents in planning educational home activities, and parents were helped to move from a dependent role as observer of the home visitor toward increased independence as a teacher,

[1] It is the judgment of the program sponsors that with time, the home visit component became more important.

planning and carrying out projects. The home visitors demonstrated teaching techniques and activities for parents to practice with their child. Home assignments were given only after the parents assumed control of the teaching. Some of the assignments were games (e.g., lotto or puppets) which stimulated parent/child interaction around educational topics, such as concepts of shape and color. The chief emphasis was on using already-present environmental materials for educational purposes, for example, autumn leaves, water at different temperatures. The home visitors tried to help parents develop an increased feeling of competence and power as teachers of their children. They also helped parents learn to reinforce the behaviors in their child they felt were desirable. Information about child development was included in the home visits, since it was felt that parents would be responsive to their child's needs and more likely to offer appropriate stimulation if they understood something about developmental stages.

During the first year of public school for the program children, the home visitor continued to make biweekly visits to report to the mothers on their child's progress.

Distinctive Characteristics

This intervention program combined a classroom with home visits. From the program reports, it seemed that the classroom was originally the focus of the program, with home visits as an adjunct. The program was primarily child-centered. The home visits, as stated by Atyas and Gray (1973) focused on the child in the home as much as on the mother in the home. The classroom and home visits were not designed to give mothers primary responsibility as teachers, but parents were encouraged to increase their involvement and responsibilities as teachers. Specific home assignments were given in some cases, and all mothers were offered new techniques for managing child behavior and teaching. Suggestions to parents included a number of kinds of participation--making classroom visits, learning about child development, working with their child as a teacher. Parents were given opportunities for involvement in their child's education--as observer, as student, and as partner to the professional teachers.

Hypotheses

It was predicted that children in the Early Training Project would increase in intellectual performance and linguistic development, would have improved school readiness skills, and would show higher grade school performance than similar disadvantaged children who did not participate in the program.

Results

Four groups were compared: T1 was a treatment group receiving three summers of preschool plus three winters of weekly home visits; T2 was a treatment group with two years of each program components; T3 was a local control group; T4 was a distal control group. The four experimental groups were tested on the Stanford-Binet over a period of six years. The program

began in June, 1962. At pre-testing, there were no significant between-group differences, although T2 was superior as a result of the random assignment. At the end of the first summer, only T1 had received treatment and the Binet score for this group (102 points) was significantly superior to the scores of the other three groups. At the second testing in May, 1963, T1 had received a winter of home visits, while the other three groups were still untreated. The mean Binet score for T1 was 96.4. The score had fallen and was no longer significantly different from the scores of the untreated groups, although the score was still above T1's pre-test score of 87.6. The August, 1963, testing included T2 as a treatment group. From August, 1963, to June, 1966, T1 and T2 combined were significantly superior to T3 and T4, with no significant difference between T1 and T2 or between T3 and T4.

The Binet scores for the control groups rose somewhat in the first year after pre-testing, but dropped below the original pre-test scores before the children began grade school. Then, at the end of the first year of grade school, the control group scores increased by almost ten points before beginning to decline again. There was some fluctuation in scores for the experimental groups, also. Both T1 and T2 dropped in average score during their final year in the program (the third year for T1 and the second year for T2). Like the control group score, the experimental group score rose after the first year of grade school and then declined over the next few years. By fourth grade, the experimental groups continued to be significantly superior, but all four groups were declining in IQ scores. The distal control group, T4, showed the sharpest decline, dropping below their original pre-test score of 86.9.

Statistically significant superiority of treatment over control children was consistently maintained into fourth grade. Data on differences in school performance would have been valuable for understanding the relationship between the consistent differences in IQ and educational goals. T1, the group with the earliest and longest exposure, always performed significantly above their pre-test scores during and after termination of the program. The overall picture for the control children was of progressive retardation (drop in IQ) momentarily slowed by their first contact with school. Children in the program were not exempted from this decline; their decrease was parallel to that of the control children but at a higher level.

Testing with the Wechsler Intelligence Scale for Children (WISC) took place at the end of the intervention and at the end of the first two years of school. The order of the groups (T1, T2, T3, T4) was maintained across the testing, with T1 and T2 significantly superior to T3 and T4 at all points. All four groups rose significantly during the first year of school (by about ten points) and then declined during the second year, although the decline was most significant.

The ITPA was administered at the same time as the WISC. At the end of the program, T1 and T2 were significantly superior to T3 and T4. At the end of the first year of school, the significant difference remained, although the scores of the experimental groups had dropped and those of the control groups had increased. At the end of the second year of school

there was no longer a significant difference, due to the decline in the scores of the experimental groups.

The pattern of scores on the PPVT was similar to the pattern of the IQ scores. T1 performed significantly better than the other three groups after its first year in the program. After that time, there were no significant differences among the four groups; but the combined treatment groups were significantly superior to the combined control groups through first grade. By fourth grade, however, the experimental groups were no longer significantly superior to controls. On the two language measures, the ITPA and PPVT, the advantage gained by experimental children during and immediately after intervention was lost during the first half of grade school.

On the Metropolitan Readiness Test administered near the end of the intervention, T1 and T2 were superior to T3 and T4 on 10 out of 11 subtests. On 3 out of 11 subtests, T3 was superior to T4, which the program sponsors took as a possible indication of diffusion of effects from the treatment groups to the control.

Metropolitan Achievement Test (MAT) batteries were administered at the end of the first, second, and fourth grades. At the end of the first grade, the two experimental groups were signficantly superior to controls on three out of four subtests. At the end of second grade, the experimental groups were significantly superior on two subtests, while the other subtests showed trends favorable to the treatment groups. The experimental groups did not differ from each other. By the end of fourth grade, there were no significant differences among groups, although experimental group scores were superior on all but one subtest. It was also found that the children's performance on the MAT was strongly related to their specific school experiences after preschool, i.e., to quality of their grade school. Local controls were significantly superior to distal controls in first and second grade, and superior in fourth grade.

Kagan's Matching Familiar Figures Test was administered to the children at the end of the last summer of the program, as a measure of reflectivity versus impulsivity. The experimental groups were significantly more reflective and displayed fewer errors. T1 was not significantly different from T2. A self-concept test[1] given to the children in the spring of each of their first two years in grade school showed only one out of twelve comparisons with significant results favoring the two experimental groups, T1 and T2. No significant differences were found at the end of first grade in the children's reputations among their peers.

In the annual interviews with parents, mothers of experimental children reported reading more frequently to their children, more often undertaking school-like activities at home, and making more visits to places of interest.

[1]Modified version of Piers and Harris Scale.

Mothers of control children more frequently reported watching television with their children and having them help with household tasks. When questioned about behaviors that made them proud of their children, control mothers were more likely to name helping around the house and being able to take care of themselves; experimental mothers stressed achievement and obedience.

Two kinds of spreading effect were suggested in the results. One was in the superior performance of T3 and T4 on a number of comparisons, a "horizontal" diffusion effect. This effect was not a large factor, but it did suggest that children in the local control group were benefiting from the program, either from their testing experiences or from contact with treatment children. Motivational differences could have been responsible, although program sponsors felt the evidence suggested that the T4 parents were more motivated T2. The second spreading effect was a "vertical" diffusion effect, seen in the IQ scores of younger siblings who were tested when the target children were at the end of the program and in their second year of school. At both testings, siblings of children in T1 and T2 scores significantly higher than control siblings, T3 and T4. Most of the variance in scores was carried by the younger siblings who were closest in age to the target children; that is, the siblings closest in age made the largest gains.

The Early Training Program produced long-term maintenance of small gains in children's IQ but apparently not in their language. Consistent differences in performance on IQ tests between the program and control children remained through fourth grade. The winter home visits, with their greater emphasis on parent/child home activities, may have been influential in the maintenance of gains; the diffusion effect shown by the younger siblings supported the hypothesis that the home visits had an effect on parent behavior. The elements of the classroom preschool program for the children were not exceptional. The classroom and the kind of parent involvement encouraged during the summer months, such as classroom visits and parent/teacher conferences, seem less likely than the home visits to have been responsible for the long-term retention of gains. The design of the project does not permit conclusions about the independent contributions of the home visits and the parent participation they involved. The effects of "enriched" classroom program and the work with the mothers were confounded in the results.

As with other intervention programs, there is the question of the nature of the gains produced, whether the gains on the IQ tests represent test skills, etc. One measure of this question is to see if experimental group children who have long-term advantages in IQ are also superior in school performance. The high positive correlation usually obtained between IQ score and school performance raises the expectation that gains in IQ should increase the likelihood of school success. In this project, experimental group children had significant gains in IQ through 4th grade; they were superior to control children on readiness tests and on the MAT through grades 1 and 2 but not in grade 4. Other measures of academic performance such as the children's grades or their grade placement, might show the experimental group children had some academic advatages in the later grade school years.

SPECIAL KINDERGARTEN INTERVENTION PROGRAM

Program Directors: Raymond Kingston
Director of Special Projects, Ypsilanti Public Schools

Norma Radin
Research Associate

In the Fall of 1967, the Ypsilanti Public Schools began a follow-up program for low-income kindergartners. The program was named the Special Kindergarten Intervention Program (SKIP). The target population was low-income children who had previously participated in a compensatory preschool and who had demonstrated high ability. The program had two main components: a special class for the children in addition to their normal kindergarten and intensive academic-oriented "counseling" for the mothers of the children. The program lasted from September 1967 to June 1969. There were 36 children involved in the first cohort of the program, 1967-68, along with the mothers of 24 of these. A second cohort participated in 1968-69.

Recruitment was from the Ypsilanti Public School kindergarten rolls. Eligibility was determined by the child's score on the Stanford-Binet test and participation in one of three local preschool programs with disadvantagement as a criterion for enrollment. The children selected were those with the highest IQ within subsets defined by race and sex. In order to enroll, mothers had to commit themselves to enter into a "working relationship" with a parent worker. Mothers were told that their child had been selected for the program because of the promise the child had shown in preschool. This introduction to the program, along with the required commitment, and the fact that the children had already shown high test scores may have combined to increase the likelihood of success for a program carried out with the sample. The sponsors themselves cautioned about the generalizability of these program results to children of low or average ability, without further testing. Children were assigned randomly to the experimental and control groups.

Program Goals

For the children: The program was designed to promote sustained cognitive excellence on the part of the children and to increase their cognitive performance.

For the parents: The directors wanted to reduce the alienation parents felt from the process of teaching and to increase the parents' confidence in their own abilities as teachers. Along with more self-confidence, the program wanted parents to learn to make the home a resource for their child's education.

Assumptions

The choice of high-ability children was based on the assumption that stabilization of preschool gains was most crucial for this group. The

directors assumed that standard preschool programs by themselves would not produce gains that would be retained beyond first grade. Consequently, a follow-up program was designed to stablize the gains of high-ability preschool children. Parents were included under the assumption that parental behavior was an important factor in a child's school performance and cognitive development. Low-income parents were considered to have the motivation and competence to be effective teachers and to support their child educationally, but to lack the skills to do so.

How the Program Worked

The special SKIP class supplemented regular kindergarten. The children attended the SKIP class four days a week for the half day they were not in kindergarten. The SKIP curriculum was based on Piagetian theory and emphasized conceptual development rather than the acquisition of specific skills.

Parent involvement was accomplished through a parent counseling program. Mothers were visited by-weekly by a professional "parent worker" when the child was not at home. Home visits lasted from 45 minutes to an hour. The home visitors were not supposed to be confidantes or therapists; rather, they were guides to help each mother see herself and her home as resources capable of helping a child learn. The visitor planned a variety of activities for the mother to carry out at home that were complementary to the child's classroom activities and were designed to reduce the child's particular cognitive deficits.

The first part of each home session was devoted to evaluation. The teacher and mother discussed the implementation of the previous session's teaching assignment and the child's progress in the target area of conceptual development. The mother reported how much time she had spent teaching a particular cognitive concept and how well she thought the child had learned it, and she gave the home visitor examples of the kinds of interactions that had occurred. The home visitor then helped the mother evaluate her teaching techniques. In the second part of the session, the mother was presented with a new teaching assignment to work on before the next meeting. Two or three cognitive concepts, such as the distinction between "hard and soft," were discussed, and the home visitor demonstrated how a concept could be taught using objects found in the home. The home visitor gave the mother both the content of the lessons and the process by which to teach it. The content was individualized for each child, as determined by information from the SKIP classroom teacher, the parent's evaluation of the child's attainment, and the parent worker's evaluation of the parent's current teaching ability (i.e., the mother's level of confidence.) Role-playing and demonstrations were the teaching methods most frequently used with the mothers.

Distinctive Characteristics

The SKIP program efforts were divided between a structured, Piagetian classroom curriculum for the children and home visits to the mothers.

Although the mothers were encouraged to think of themselves as the primary teacher of their children, the fact that the children were also being taught by a kindergarten teacher and a special SKIP teacher might easily have given the mothers another message about their own responsibility. On the other hand, other factors emphasized parent responsibility. The home visitors worked solely with the mothers, never directly teaching the children. Also, the home was the exclusive locus of the parent involvement. Mothers participated actively in the program, learning to be more effective teachers. Their home activities were structured by a set of tasks to carry out with their child. Mothers were also trained to evaluate their own and their child's progress, instead of depending upon the professionals to tell them what was needed.

Hypotheses

It was predicted that during kindergarten (1) children not participating in SKIP would show a significant decline in cognitive growth: (2) children in the SKIP supplementary classroom only (no parent involvement) would show neither a decline in cognitive growth nor an increase; (3) children attending the SKIP classroom, whose mothers were in the counseling, would show a significant increase in intellectual growth.

Results

In the first cohort, 36 children were randomly assigned to three groups of 12 each, matched on sex, race, and mean Stanford-Binet score. Group III children attended traditional kindergarten only. Group II children attended kindergarten daily and the SKIP classroom four half-days each week. Group I children attended kindergarten and the SKIP classroom, and their mothers received home visits. All of the children had attended local preschools. All were low-income. All three groups began kindergarten with a mean IQ around 108 points.

The post-test mean IQ scores for the three groups were: III--114.6; II--113.0; I--124.2. Group I was significantly superior to Groups II and III, which were not significantly different from each other. It was not expected that all three groups would show increases in IQ scores. The general increase might have been the result of the children's initial high ability. The high ability might have meant that the home environments of these children were already superior, or parental motivation in all the groups, including II and III, might have been high due to having been told that their children were superior.

On the Metropolitan Reading Readiness Test, the mean percentile ranking of Group I was significantly higher than that of either Group II or Group III.

On the Cognitive Home Environment Scale, Group I was significantly superior on three items dealing with: (1) periodicals found in the home, (2) college plans for the child, and (3) the level of school grades that satisfied the parents. The Cognitive Home Environment Scale scores were interpreted as indicating that actual changes took place in the home

environment and in parent attitudes about education as a result of the parent involvement. It had been hypothesized that the total SKIP program would produce a greater increase in home stimulation.

The post-test scores clearly indicated the advantages of participation in Group I. The home counseling was shown to be a critical variable in the program effectiveness. Faced with the apparent important of parent involvement, the program evaluators went back and divided the children into two groups based on whether their previous preschool programs had or had not included intensive parent work. Two of the three preschools had. A clear trend emerged showing that significantly larger cognitive gains (around 16 points) were made by the children in Group I (whose parents were involved in SKIP) whose parents had been involved in their preschool program. The second largest gains were made by those children in Group II who had been in a preschool with parent participation; third largest gains were made by similar children in Group III. The children who had been in preschool programs with intensive parent work showed greater cognitive gains regardless of their treatment group. Children who had been in parent-involvement preschools made no significant gains in the special Piagetian SKIP classroom without the home-counseling component.

For those high-IQ children who had had no intensive parent involvement previous to SKIP, those in Groups I and III gained similar and small amounts, while those in Group II fell six points. Bronfenbrenner (1974) pointed out that the children in Group II were in school almost all day, and their mothers had no involvement; those in Group I had parent involvement, and the children in Group III were at home with their parents for at least half-days. The influence of parent/child interaction was suggested by the relationship between level of gain and amount of time supposedly spent by the child with his mother.

The division of the children according to the amount of previous parent participation in their schooling led to a number of interesting hypotheses about the power of parent involvement in early education. The data suggested that parent involvement affects the amount of retention of gain by children in a preschool intervention program. It was further suggested that parent involvement was crucial in continuing cognitive growth. The children in this study were high achievers at an early age, which suggested that their parents were more likely to have been interacting educationally with them before the follow-up intervention. It is true that the results shown by SKIP program were quite large in relation to the average number of visits (seven) that each mother received during the program. The program sponsors noted that the mothers accepted the program quite seriously, responsibly, and with great enthusiasm.

The results from the second cohort in the program were somewhat different. All of these children had attended the same compensatory preschool program, the Ypsilanti Early Education Program, which had a parent component. In kindergarten, the performance of Groups I and II was virtually identical. Both groups made significantly greater gains on the Stanford-Binet than Group III, but there was no significant difference between

I and II on the Stanford-Binet or on the Metropolitan Reading Readiness Test. The mean gain of Groups I and II two years after the end of the preschool was 16.2 points, which was significantly greater than the average two-year gain of the control children of 1.1 points. There was also a significant difference between Groups I and II and Group III on a classification test and on a measure of self-esteem. There was no significant difference between the groups on the HOME scale.

The results from the second cohort confirmed the importance of a supplementary class after preschool for maintaining gains in IQ and self-esteem, but the parent counseling was not indicated as an essential factor in the performance of these children. When the counseling component for this cohort was examined, however, it was found that the new home counselor hired for the second cohort had offered fewer cognitive home sessions and had emphasized counseling the parents on family problems. It may be that the value of the parent program to the child's cognitive development depended on the nature of the parent training, i.e., on what parents were taught to do with their child. Children's intellectual growth might be significantly affected only by parent programs devoted to teaching mothers how to teach their children, while more diffuse parent programs without a focus on cognitive activities might be relatively less effective.

YPSILANTI PERRY PRESCHOOL PROJECT (THE COGNITIVELY-ORIENTED CURRICULUM)[1]

Program Director: David P. Weikart

The Ypsilanti Perry Preschool Project offered a planned preschool experience for three-and four-year-old children, supplemented by 90 minute weekly home visits to the children and their mothers. Children remained in the program for two years, with the program intervention lasting from October to May of each year. The program began in 1962 and formally closed in June, 1967, although follow-up studies continued. The aim of the program was to compensate for "functional mental retardation" found in disadvantaged children; the target population was low-income, low-IQ children.

The recruitment of families was conducted within a specific geographical area--a single school attendance area--which produced a subject population of black families. School census data were used to locate families with three and four year old children; the preschool teachers then interviewed the families and asked those eligible to join the project. The two eligibility criteria were (1) a family's score on a socioeconomic status scale and (2) the child's IQ score. (The scores were to be between 50 and 85, which certified children as "educable mentally retarded" and entitled them to special education support from the state of Michigan.) Once a subject pool was selected, the children were assigned to a treatment group by an (essentially) random process, in order to control for motivational differences between parents in the two groups. Efforts at matching prevented the process from being truly random. For each group entering the program, experimental and control samples were matched on variables, like age, sex, level of parents' education, and then randomly assigned.

Program Goals

For the children: The program was aimed at increasing children's intellectual growth and helping them develop the skills necessary for academic success. The program concentrated on motor skills, basic concepts, and language development. In particular, there was a concern with increasing the level of the children's symbolic representation, as an essential

[1]This project was one of the earliest and one of the most carefully planned evaluated intervention programs. The assumptions behind it reflect the thinking of the early 1960's. Weikart and his associates have continued to work in the field of preschool intervention, and their assumptions have changed since the Ypsilanti Perry Preschool Project. The Ypsilanti Infant Education Project (pp.51-57) is a better reflection of the current state of their thinking. The projects Weikart is currently involved in emphasize the mother's own ideas and goals, with professionals helping her implement these. All work is now within the High/Scope Educational Research Foundation, a non-profit research institute.

step for later intellectual performance and growth. Another goal was to effect positive changes in self-concept by giving children responsibility in choosing daily classroom activities and in evaluating their own work.

For the parents: One goal was to improve the relationship between the parents and the school and teachers, so that the parents would be more likely to use the school for guidance and more interested in being actively involved in their child's education. Another goal was for parents to provide a home environment that would stimulate and support the intellectual growth of their child. This involved helping the parents develop teaching skills and knowledge of child development.

Assumptions

The primary assumption in 1962 was that the cognitive deficits shown by disadvantaged children were social-environmental; that is, the early environment of these children led to inadequate development of cognitive functioning, which then limited their capacity to use their educational system. Program sponsors did not specify exactly which aspects of the home environment they felt were responsible, but both the external environment (level and kind of stimulation) and the patterns of mother/child interaction were foci of the intervention. It was assumed that mothers had the language and concepts for stimulating the development of their children. Besides working to develop the mothers' use of their teaching skills, the program elected to intervene in the children's environment by providing daily, carefully planned preschool classes outside the home. Extensive changes in the children's intellectual environment were assumed to promote their cognitive and socioemotional development.

The children's earliest years were considered to be a critical time for the growth of essential intellectual skills, such as language and concept development. Thus, the years before age four were seen as the otpimal time for intervention.

The theoretical basis of the children's preschool program was Piagetian. This meant that the child's interaction with his environment was recognized as crucial to his intellectual development. It was considered important for the child to have a multiplicity of experiences and a varied environment in order to have the opportunity to develop his cognitive functions through his interactions. The program directors also accepted the Piagetian view of the directionality of development toward the goal of organized, symbolic representations of the world; and this goal guided the program for the children.

How the Program Worked

Children attended a preschool program for half-days, five days a week. The curriculum was called the "cognitively oriented curriculum" because of its process approach to general child development. The curriculum was carefully planned according to developmental theory. Each day's classes were organized by the teachers to offer the children activities that were appropriate to each child's stage of cognitive development and which

stimulated growth in different concept areas. The four main concept areas were: classfication, seriation, temporal relations, and spatial relations. The Piagetian sequential outline of cognitive development from sensory motor to the symbolic level was the basis in designing activities. The development of language was a primary concern. The teaching and learning were individualized. Strong demands were placed on the teacher's planning ability, since the learning situation was to be individually designed for each child's level of development.

The classroom program was complemented by weekly 90 minute home visits by the teachers to the children and mothers. Fifty percent of the teacher's time was devoted to home teaching and fifty percent to classroom teaching. Although the children spent much more time in the classroom, the home visits were considered an essential and integral part of the program.

One purpose of the home visits was to "individualize" the classroom activities for each child by having separate teacher/child interaction on a one-to-one basis. The teacher was concerned with the educational growth of the child; her visits augmented and extended the school activities on a more intimate level. Although the weekly lessons did not consist of a prepackaged sequence of tasks, the teachers went to the homes with plans and ideas about what each child needed in the way of special work, drawn from classroom observation of the child's development.

Beyond tutoring the child, a second purpose of the home visits was to engage the mother in the education and teaching process. The teachers were concerned with helping the mothers to restructure their interactions with their child so as to offer more developmentally-appropriate learning activities. It was felt that by observing while the teacher introduced activities to the child, the mother would gain a background of knowledge concerning her child's educational needs and would learn new teaching techniques. Efforts were made to show mothers how to use materials on their own with their children. The teachers also informally discussed child-rearing methods with the mothers and indirectly suggested alternative ways of handling children through the example of their own behavior with the children, e.g., through modeling.

During the home visits, the role of the mother could range from observer to active participant as partner to the teacher. The role depended on the individual mother and on the kind of information being transmitted to the mother (e.g., facts on child development versus encouragement of the teaching role). Parents were included to the extent that they were "willing or could be persuaded to participate." Parent participation was encouraged and supported but not absolutely required if the mother was uncomfortable at first and preferred to watch. Teacher reports confirmed that teachers took the initiative in the home teaching. Mothers were not put in the role of most important teacher. The professional teacher was both an advisor and a partner to the mother. Mothers were not assigned tasks to be completed at home, although they were encouraged to increase their interaction with their child, especially educationally stimulating interactions as demonstrated by the teacher.

(This program was a precursor to the Ypsilanti Infant Education Project, in which the setting of educational goals by the mothers and their role as primary teacher were emphasized.)

Parent group meetings were inaugurated in the first year after the project began. Small group meetings and discussions were held approximately monthly as a way to use group support to reinforce changes in parental attitudes. While attendance at the meetings was limited, the meetings were seen as an opportunity to encourage parents to change their attitudes through the example of other parents. Teachers were originally in charge of planning and leading these meetings; eventually, parent leadership was encouraged by having parents plan (although not moderate) their own meetings.

Teachers also encouraged all parents to visit and observe the preschool activities.

Distinctive Characteristics

The Ypsilanti Perry Preschool Program had a carefully planned curriculum based on Piagetian developmental theory. The program made extensive efforts to individualize the teaching, both in the classroom and through home visits to the children. The combined preschool classes plus home visits offered the children intensive involvement in compensatory intervention. The parents were primarily involved through the home visits, even though the visits themselves were aimed at teacher tutoring of the child as well as at parent training. Through observation and directed participation as teachers, parents were encouraged to be more active in guiding and stimulating their child's development. Outside of the actual home visits, the parent's role with the child was not highly structured by assignments, etc. Parents were involved as students, as aides, as partners. The program design--preschool classes and home tutoring and parent training--did not seem to emphasize the parent's primary responsibility as teacher, but the formal of the home visits offered parents encouragement and opportunity to increase their skills in teaching and improve their perception of their role as educators.

Main Hypotheses

It was hypothesized that when compared to a no-treatment control group, the children in the program would score higher on measures of academic potential. Also, program children were expected to have more success in school. It was further predicted that grade school teachers would rate program children as superior in socio-emotional adjustment.

Results

Five sets of experimental and control groups were compared. Each experimental-control set was enrolled beginning in a different year, 1962-1967. The first group of children in the program entered at four years of age and were in the program only one year, while the rest entered at three years and remained in the program for two years. All five experimental groups were combined in the evaluation summary, under the assumption that

the differences in their preschool experiences, age of entry, etc. would not substantially affect their performance. This assumption was supported by the data. Follow-up data on all the children were available into the fourth grade.

Cognitive-linguistic measures: On the Stanford-Binet, there were sharp and significant differences in the amount of gain made by E and C groups after one year of intervention. Experimental groups gained an average of 16 IQ points, while control groups gained 5 points. At the end of the second year of preschool, the E group mean score had remained stable (-.6 change), as did the C mean score (0.2 change). Although experimental group mean IQ scores were consistently higher than mean scores for the control group at every point, the sharp differences after the first year of intervention were followed by gradually diminishing differences through fourth grade. The average scores for the control groups rose slightly in kindergarten and first grade as the children entered school and then declined in parallel E group scores. By second grade, there were no significant differences in average IQ scores between experimental and control groups. By the fourth grade, two-thirds of the original gain shown by the experimental groups had disappeared. The difference at that time between the E and C groups was small.

The same pattern appeared on the Leiter International Performance Scale results. Whereas the experimental group gained 27 points during the first year of intervention, the control group gained only 13 points. There was a significant difference between the two groups. After the end of the first year, the experimental group gradually declined until first grade, (dropping 7 points by the end of the second year of preschool), while the control-group scores rose slightly through second grade. (This was likely the result of beginning school). From kindergarten on, there was no significant difference between the E and C groups until fourth grade. At that point, a significant difference between the two groups reappeared, due to a substantial decline in the control group scores and a slight gain by the experimental group.

On the PPVT, the experimental groups were consistently superior to the control groups through kindergarten. While the control group mean score remained about the same over the preschool years, the E group gained 7.7 points in the first year and 6.5 points in the second year. There is a problem with interpreting both the Leiter and the PPVT results in that there was a significant difference at pre-testing between the experimental and control group who were followed up. This original discrepancy was attributed to the fact that the experimental children were pre-tested up to three months after their entrance into the intervention program, and the children had already made gains due to the intervention.

On the ITPA total score, the experimental group was superior to the control group at every testing point, but only one marginally significant difference appeared--in third grade. For both experimental and control groups, scores rose from the first year of preschool through third grade. One subtest scale, the Auditory-Vocal Association, significantly favored the experimental group at each testing point except second grade.

Measures of academic skills and school adjustment: After the children entered public school, their California Achievement Test scores were compared. Experimental group children scored significantly higher than control children on all CAT tests from first grade through fourth grade. Differences favoring the experimental group apparently increased during these early years of grade school, on all but the Arithmetic subtest. Follow-up data being collected beyond fourth grade suggest that the experimental group will continue to outscore the control group on achievement tests. One wave of children was evaluated during their eighth-grade year, and the experimental group scores were significantly superior to the control group scores.

The children's public school teachers completed two rating scales--the Pupil Behavior Inventory and the Ypsilanti Rating Scale--which were measures of behavior and attitudes conducive to school success. There was only one significant difference between E and C children in mean rating; that was on Verbal Skill at grade two. Experimental children did, however, receive consistently higher ratings on academic motivation, academic potential, and verbal skills. After kindergarten and through third grade, overall teacher ratings of social and emotional maturity significantly favored the experimental group. The overall differences became stronger over time. However, specific comparisons between the experimental and control groups were significant in less than half of the cases despite a consistent superiority of the experimental children.

School success: The control children were more likely to be retained in a grade or placed in special remedial educational classes. By fourth grade, 38 percent of control children were either not at their expected grade level or were in special classes, versus 17 percent of the experimental group. Differences between the two groups increased through grade school, reaching significance when the children were in third and fourth grade.

Parent measures: The Cognitive Home Environment Scale and the Maternal Attitude Inventory were examined for indications of parent change by the end of the preschool period. (No pretest data were available.) There appeared to be a small treatment effect on maternal child-rearing attitudes (more "middle-class" scores), but there was no evidence of change in child-rearing behaviors.

A regression analysis was done to determine which variables were the best predicators of the children's academic achievement, and interesting findings emerged. Different factors had the greatest predictive power in the preschool and post-test periods. During the preschool period, treatment group membership was the most powerful predictor of Binet scores. In the post-test period, "initial child characteristics" was the most powerful predictor of Binet scores. The effects of home environment on

academic skills and school success were stronger for the control children than for the experimental children. Two conclusions were derived from the data: (1) the effects of preschool were not very large in predicting grade school achievement; (2) the experimental children's academic success appeared to be less tied to demographic variables than it was for the control children. This was felt to indicate that the importance of the intervention program in "freeing" the children from the usual relationships of demographic variables and school achievement.

The evaluation of the Ypsilanti Perry Preschool Project was quite intensive and extensive. The data suggested an interesting pattern of program effects. During the preschool period, the program children made quite marked gains on standarized measures of cognitive and language ability, gains that gave them a significant advantage over control children.[2] This advantage in what program sponsors defined as "academic potential" decreased over the years after the intervention. Experimental children consistently outscored control children, but the differences by fourth grade were small and "not of obvious educational importance." On the other hand, teacher ratings of school adjustment and the children's success in staying at expected grade level significantly favored experimental children up to five years after the intervention ended. Program sponsors noted that not only were experimental children evidently coping better with school, they were costing the school system less in the way of special classes. The Ypsilanti-Perry Preschool Program showed long-term advantages for program children in their school success, i.e., grade placement. The data offered evidence of advantage that was more concrete than IQ differences.

A number of factors were cited as responsible for the program's effectiveness. One subset of factors concerned the classroom program for the children. The theory-based curriculum was seen as providing clear guidelines for the classroom, an impetus to vigorous planning and thinking about the program, and a challenge to teachers to think about activities appropriate for each child. (See the following report on the Ypsilanti Curriculum Demonstration Project for further discussion.) Another factor was the emphasis on language, both in the classroom and the home visits. Verbal interaction between teacher and child, teacher and mother, and mother and child was a conscious focus. (This factor has been suggested by other program sponsors as essential to program effectiveness in improving children's intellectual development. See Levenstein's Mother-Child Home Program, for instance.)

---

[2] The level of gains by experimental children on standardized tests of intelligence was among the highest, at immediate testing. Bronfenbrenner (1974) suggested that the high gains for children in the Ypsilanti program could be due to regression to the mean, a statistical artifact. The children in the program had low IQ's (range of 50 to 85; mean of 79). Extreme scores on a test tend to regress toward the mean score on a second testing. However, the data from this study do not support such a conclusion. "Regression to the mean" did not occur in the children randomly assigned to the control group, as their IQ test scores did not show such dramatic parallel changes.

A third subset of factors concerned the mother's involvement in the program. It was recognized that the home visits did not concentrate on specific teaching behaviors as much as on "parent support," i.e., an awareness of child development, encouragement of the child's self-initiated learning, mother/child verbal interaction and home learning games. Parent behavior and attitude changes were not intensively measured, and the data available did not indicate behavior changes that might offer continuing intellectual support to the children. Unfortunately, the program was not designed to separate the effects of the home visitation versus the preschool component or to give as an estimate of the relative contribution of each to the long-term differences favoring the experimental children.

THE YPSILANTI CURRICULUM DEMONSTRATION PROJECT

Program Directors: David P. Weikart

In 1967, this project was initiated to investigate the relative effectiveness of different curricula for early education programs. One of the curricula was the cognitively-oriented classroom and home visits comprising the Ypsilanti-Perry Preschool[1], so this project offered a further test of the effectiveness of that approach to intervention.

The three curricula that were compared were an Open Framework curriculum (the Cognitively-Oriented classroom), a Programmed curriculum (Language Training curriculum), and a Unit-Based curriculum (traditional nursery school). The children attended their particular preschool class for two years. Follow-up has continued into their second second grade year. The children were low-income, black three- and four-year olds, who had been classified as "functionally retarded" (low IQ). They were matched on sex and race and randomly assigned to one of the three classrooms.

Assumptions, Program Goals, and How the Programs Worked

Each curriculum had its own assumptions about how best to achieve intellectual gains and greater school success and its own assumptions about learning. All three curricula were organized on the assumption that systematically changing the early experience of disadvantaged, low IQ children could improve their cognitive development.

The Cognitively-Oriented classroom curriculum was based on Piagetian developmental theory. The curriculum was carefully structured to offer each child activities appropriate to his level of cognitive development. The curriculum emphasized learning through direct experience and action. The teacher had the responsibility of arranging learning situations and materials so as to create interaction between the child and the environment. This involved different materials and lessons for different children. The learning goals were reasoning skills and fundamental concepts. There was also a strong emphasis on language interactions. A broad base of cognitive ability was considered to be better preparation for school success than training in specific skills.

The classroom program was complemented by weekly home visits of the teacher to each child and his mother. The visits were of similar content and approach to those described under the Ypsilanti-Perry Preschool Project. Besides offering individualized tutoring for the child, the visits offered encouragement and training to the mothers. Mothers were encouraged to be more supportive of their child's development and learning efforts and were given models of how to interact with their child and plan activities so as to stimulate his intellectual growth.

The Language Training curriculum was a programmed curriculum developed by Bereiter and Englemann. There was direct teaching of language, arithmetic, and reading skills, with clearly-defined goals in terms of skill achievement. The classes offered a carefully designed sequence of tasks

[1] See previous program

to move each child toward the curriculum objectives. Teachers followed explicit instructions from scripted materials. This curriculum focused on the learning of correct responses and specific skills, as what low-income children needed in preparation for school.

Weekly home visits also accompanied this curriculum. The home visits were in the same "curricular style" as the classroom. Although the reports offered no details, it seems likely that a mother observed the teacher working with her child on a task that was part of a sequence of skill mastery and then aided or participated with the teacher in the lessons. Mothers were encouraged to make general changes in their home interactions (e.g., more language, more educational games), outside of their role as teacher of the pre-determined tasks; specific lessons were not, however, left with the mother to do.

The Unit-Based curriculum was a traditional, child-centered classroom offering an open, free environment for the children. Social and emotional development were the focus. Free play and active involvement of the children were encouraged as methods of stimulating the children's emotional growth. The weekly home visits were only described as being in the same style. This suggests that the visiting teachers initiated activities or games with the children that were conducive to socio-emotional development, e.g., fantasy play, and that the mothers watched, gradually became more involved during the lesson, and were encouraged to carry out similar activities during the week.

All three groups of children attended classes for half-days during the week. All three groups received weekly 90-minute home visits. Program sponsors stressed that in all three curricula, teachers set weekly goals and carefully planned each day's program to meet these goals.

Hypotheses

It was expected that there would be significant difference between the groups in the level of improvement in the children's academic potential, favoring the Open Framework and Programmed Curricula over the Unit-Based.

Results

The results came from testing of the three groups of children (from five to eight children in each group) on standardized tests of academic potential and achievement. After one year of preschool plus home visits, all three groups had made substantial IQ gains, (measured by the Stanford-Binet), and there were no significant differences between the group averages. The Unit-Based curriculum group gained 27.5 points; the Cognitively-Oriented curriculum, 27.6 points; the Language Training curriculum, 30.2 points. By the end of first grade, there was a drop in gain for all three groups, but all three continued to show large gains of 25 points, 20 points and 18 points, respectively. In second grade, children in all three curricula maintained a gain of at least 14 points over their pre-test scores. There were still only small between-group differences in IQ scores. On the California Achievement Test, greater differences appeared. The percentile

for the Unit-Based group was 46 percent; for the Cognitively-Oriented group, 42 percent, and for the Language Training group, 24 percent. (A group of control children were at the 4 percent level.) The children who had received the Language Training curriculum in preschool failed to keep up with the other preschool groups, although they were still superior to the control group.

A second "wave" of children who entered the Curriculum Demonstration Project showed these first year gains: 17.6 IQ points for the Unit-Based curriculum, 22.4 points for the Cognitively-Oriented; 24 points for the Language Training group. These same three groups again lost some of their original gain by the end of kindergarten, but still maintained gains of 5.4 points, 12.3 points, and 13.1 points, respectively.

The questions about relative effectiveness of the different curricula were partially answered. Unexpectedly, all three did about equally well in terms of immediate IQ gains. There were some differences in long-term gains: in the second wave, the Unit-Based curriculum did not maintain their gains nearly as fully; in the first wave, the Language Training group did not do as well on the CAT. Nevertheless, the conclusion was drawn that broad curricula were equivalent, <u>if</u> they offered a wide range of active experiences to the child and <u>if</u> the curriculum were structured by a theoretical orientation that guided the teacher in her daily and yearly plans.

The results from this Project confirmed the potency of the Ypsilanti approach combining the cognitively-oriented classroom and home visits in producing large gains in IQ scores. The curriculum as employed in this project showed more encouraging long-term results than it did in the Ypsilanti-Perry Preschool Project. Here, more of the original gain was maintained, at least as far as second grade. The effectiveness of the combined intervention was further demonstrated.

The question of the importance of the parent involvement was not directly addressed by this study. There was no way to separate the effects of the classroom and the home visits for any of the three curricula; there was no way of knowing whether differences in the home visits in terms of amount of structured lessons for mothers, level of maternal participation, etc. were responsible for differences especially in the children's long-term performances; since all three curricula had the home visit component, there was no information on the relative effectiveness of different strategies of maternal involvement in combination with the different curricula. It is true that long-term maintenance of IQ gains and advantage in school achievement were demonstrated by three curricula that all had home visits to the mothers. It seems likely that the home visits affected the mothers' attitudes and behaviors and the home environments, and had some influence on the children. More specific (and informative) conclusions could not be drawn about parent involvement.

SPANISH DAME BILINGUAL PROJECT

Program Director: Toni Micotti
Santa Clara County, California, Office of Education

The Spanish Dame Bilingual Project began in 1969 and finished its pilot operation in June, 1974. In the program, women recruited from the target area were trained as paraprofessional home tutors to (1) teach groups of five children daily in concept formation and language development (Spanish and English) and (2) work individually with the mothers on teaching methods for stimulating their child's intellectual development. All of the contact with program families occurred in the homes of the participants. The Project included home classes for three and four-year-old preschool children, plus a special curriculum for kindergarten, and first, second, and third grades in selected public schools.

The Project was designed to serve low-income, bilingual families whose primary language was Spanish. Families were selected from three target areas of the Alum Rock School District of San Jose, California. Eligible families were identified through school records, one-to-one visits by community liaisons, local newspaper publicity, and word-of-mouth. Parents who expressed interest had to give oral commitment to the use of their home once a week and to participation in the lesson activities in their home. Parents who agreed were assigned to the experimental or control group. (Assignment was not truly random due to efforts at matching the two groups.) Program sponsors expected that the families in the Bilingual Education Project, who agreed to enroll their children in a home-based preschool program, might be different from Spanish-speaking families who enrolled their children in a classroom preschool program. Comparisons between the Bilingual Project families and families of similar background involved in an area preschool indicated that the Project parents were "more Spanish", i.e., less acculturated.

Assumptions

The target children for this Project were assumed to enter school with a double handicap which decreased their potential for academic success. First, they lacked adequate command of English, the primary language of instruction. Second, their early cognitive development and language development in Spanish were hampered by conditions associated with poverty. First, the patterns of language use in low-income homes were not considered conducive to children's language development. It was also assumed that low-income parents did not consider themselves responsible for teaching their child. Parent behavior was seen as crucial to the child's development. The intervention was based in the homes for at least two reasons. Home-based classes were assumed to have maximum impact because they involved parents. Also, it was felt that Mexican-American parents would be more likely to participate in a home-based than a school-based program, due to distrust of the schools.

Early educational intervention was assumed necessary to keep low-income, bilingual children from failing in school. Early intervention was also assumed to be important for influencing the children's language development.

Program Goals

For the children: The program was designed to improve the children's Spanish language skills and to strengthen their appreciation and knowledge of the culture associated with the Spanish language. An equally important goal was providing the children with a basic level of fluency in English. The program was also concerned with improving the children's self-concept through positive learning experiences.

For the parents: The program in general aimed to establish closer cooperation between home and school. The program also wanted to provide parents with techniques for stimulating their child's conceptual and language development. It was hoped that parents would use these techniques in home learning activities. Other aspects of making parents better teachers was increasing their awareness of the child and his needs, strengthening the parents' language skills in Spanish and English, and helping parents understand the rationale behind the child's curriculum.

How the Program Worked

Bilingual target area residents were trained as home teachers. Each teacher was responsible for five children, whom she taught in daily 60-90 minute sessions. The classes were held in the homes of each of the five students on a rotational basis.

Special curricula were developed for the preschool children. The first year's curriculum emphasized language development and concept formation in Spanish, the children's primary language. Gradually, after the first four months of daily instruction in Spanish, English was introduced as a second language. From the end of the first year on, the instruction was divided equally between Spanish and English.

The language curriculum was designed to increase the children's comprehension, level of structural complexity, and ability to communicate in both English and Spanish. English was taught to the children through a program stressing "kernel" patterns of English. Basic syntactic patterns were systematically introduced in spoken language form, always related at first to actual objects or actions. These patterns provided a skeleton of English which the child could gradually fill in with extensive vocabulary and transformation of the kernels, after becoming fluent in using the basic forms. The curriculum in concept formation had clear goals in terms of concepts the children should acquire and of abilities in categorization they should have. Lessons were structured to introduce concepts sequentially, from simple and concrete to complex and abstract. The concepts taught included number, shape, time, size. Skills for dealing with concepts were also taught, such as matching, recognition, identification.

The lessons were sequenced so as to provide children with continuing opportunities for achievement. The teachers also used positive reinforcement of the children's efforts. These aspects of the program were expected to strengthen the children's self-concepts.

The home lessons were usually carried out with the small group participating as a whole. The activities were quite structured and teacher-directed. Each day's lessons were pre-planned with specific goals and activities. Child-directed activities were apparently not a large part of the curriculum.

The mother whose home was being used was expected to participate during the home lessons as aide and partner to the teacher. The home tutor was seen as a model for the mother to observe and imitate. The home sessions were considered to offer an informal education to parents in techniques for teaching fundamental skills. In addition, the full program plan called for weekly visits by the home tutor to individual mothers. The visits were to provide direct intensive individual training in techniques for stimulating learning. Expendable materials were to be left with the mothers as stimuli for educationally-oriented interactions with their child. The mothers were encouraged to use the new teaching techniques in home activities that reinforced what the child was learning in their daily lessons. (The individual home visits were not carried out, however, until the second year of program operation.)

The grade-school aged children attended special classes within the public schools. Their teachers were trained to continue the carefully planned classes with bilingual instruction which emphasized language and concept skills and the Mexican-American culture.

Mothers of grade school children did not have the observational and practical learning experiences of having the lessons in their own homes. They were offered group training in teaching techniques similar to the one-to-one training of preschool mothers. Mothers were personally contacted at least twice during the year and given feedback on their child's progress.

A Parent Advisory Committee was formed to meet monthly. The Committee functioned to provide input to the program sponsors from the involved population on suggested improvements. Program sponsors also kept committee members informed about program progress and future plans.

A community liaison was hired to work with the parents. Her responsibilities were to provide information in social services available to the families and to help parents strengthen their proficiency in English.

Efforts to keep the community informed about the Bilingual Education Project included the Parent Council, the liaison, handouts, and school newsletters.

Distinctive Characteristics

The Bilingual Education Project involved the community to a large degree, through the use of target area residents as home tutors, strong publicity efforts and so on. In terms of the level of parent involvement, the intensity and amount of responsibility offered to parents depended on how closely the form of the parent participation matched the ideal plan--the home classes plus home teaching sessions with the individual mothers. Without the individual parent/teacher sessions, parents did not seem to have a large role in the educational intervention itself. The individual parent/teacher sessions and direct training would seem to be crucial for both encouraging parent initiative in undertaking home activities and giving parents effective teaching skills to carry out the educational tasks. The weekly parent/teacher sessions were carried out in four of the five years of program operation, and the sessions were gradually shortened to about 20 minutes. No specific home assignments were given, and materials were not left with the mothers.

Parents were encouraged to participate as aides to the teachers in the home lessons as a way of learning about the curriculum and about teaching techniques. However, the teachers were responsible for the lessons--both the planning and implementation. The teacher/child interaction seemed to be the primary vehicle of the program efforts. For the preschool-aged children, the total program efforts went into home-based classes. Basing the classes in the homes might reinforce for the mothers the idea of importance of home activities and home environment to their child's development. Parents were expected to be as partners to the teachers in sharing responsibility for teaching the children. However, the parent/teacher interaction seemed to be primarily a student/advisor relationship. Parents seemed to function as aides rather than as partners to the teachers. The mothers and home tutors apparently functioned in quite different roles, especially in the daily classes. Although parents did not help plan the content of the lessons, the Parent Advisory Committee gave them a voice in general program planning.

Results

The evaluation results described are from three years of the Bilingual Project--1970/71, 1971/72, and 1972/73. Each year's evaluation consisted of comparisons between experimental and control groups in a pre-test-post-test design. Different measures were used in different years, and the composition of the control groups also varied. The number of children in Project classes increased during the program's operation. In 1969, 40 preschool children were enrolled; in 1970, 100 children participated in first and second year preschool classes and kindergarten (50 three- and four-year-olds in the first year of preschool; 30 four-year-olds; 20 kindergartners). In 1971/72, 170 children were enrolled, including 30 first-graders. By 1972/73, classes had been added also at the second-grade level.

1970-71

Three experimental groups and four control groups were formed and compared on measures of school readiness skills and oral language development in Spanish and English. The experimental groups were (1) three- and four-year-olds in their first year of the Project preschool; (2) four-year-olds in the second year of the Project preschool (who had had Year I of the program the previous year); (3) five-year-olds in a Project kindergarten class. The comparison groups were three- and four-year-olds with no treatment; four-year-olds enrolled in a classroom preschool program; and five-year-olds in the regular public school kindergarten. Oral language development in Spanish was measured by the Spanish Concept Comprehension Test. The first year and second year experimental groups and the four-year-olds in the area preschool made significant gains after one year and significantly outscored the no-treatment groups. The children at the end of their second year of the special classes made the greater gains. On the "Comprehension of Directions" subtest of the Basic Tests of Competence (Spanish version), all groups, comparison and experimental, made significant gains, and the gains by the first and second year program children were significantly higher than their comparison group's Comprehension of English which was assessed using the English version of the "Comprehension of Directions" subtest. Both groups of program children (first and second year) made greater gains than their respective comparisons, but all the preschool-age groups made significant gains. On the Test of English Grammar and Vocabulary, which was designed to measure the children's command of the "kernel" English sentence structures they were taught, the program children made greater gains than the comparison children on three out of four subtests, although the differences were not significant. The performance of the kindergarten children was not as favorable to the program. They did not consistently outscore their comparison group nor the second year Bilingual preschool program group. The kindergarten group was, however, a mixture of those who had and had not previously been in the Bilingual preschool program. Also, the kindergarten curriculum focused on arithmetic, etc., as well as language development.

The home tutors observed that the parents seemed to improve in their effectiveness in working with their children and were buying more books and educational toys. Parent interviews showed that 100 percent of the parents felt that their children learned new things and were receiving a good education in the program, and all but one parent wanted their child to continue. Ninety percent of the parents saw changes in the children in verbal fluency and interest in learning. When asked about their own teaching techniques, the parents were less consistent. While over 90 percent reported singing and telling stores to their children, only about 50 percent said they read to their children or told rhymes. In general, the parents' reports indicated that most parents felt more involved in teaching and helping their children.

The program seemed to benefit the home tutors, as seen in their enrollment in college courses. The community also benefited through receiving information on social services, help in using nearby health centers, and food supplies.

1971-72

Of the 170 children involved in the program in the third year, 80 were preschool age. For testing, the three-and four-year-olds were divided into English-dominant and Spanish-dominant. Although Spanish was the primary home language for the program children, they differed as to the language in which they were most proficient. The four-year-olds were further divided into those with one previous year in the preschool and those receiving the second-year curriculum only. Project children were compared with no-treatment children of similar background characteristics.

All groups of children (Project and control) made significant gains on each test except the Preschool Inventory. The Project groups scored significantly higher at post-test on all tests but the Preschool Inventory. Children generally scored significantly higher on the subtests in their dominant language.

Vocabulary and Comprehension Test, Spanish version: At the end of the first year of preschool, the Project three-year-olds significantly outgained and outscored their control group. Spanish-dominant three-year-olds outscored the English-dominant ones, although the latter group made slightly greater gains. Both groups of Project children gained over 17 points; their control groups made almost no gain. Project children who first entered the program at four years of age showed similarly high gains. Again, the English-dominant children gained more but achieved a lower final score than the Spanish-dominant children. Their post-test scores were slightly higher than the three-year-olds and higher than their control group. When these children were tested on the same test after their kindergarten (and second) year in the program, the experimental children had continued to gain and increased their scores, while the control children made no gains. In first grade, the experimental children continued to outscore the control children. The four-year-olds in their second year of the program made further large gains (28 points for the English-dominant and 8 points for the Spanish-dominant). The English-dominant children had passed the Spanish-dominant program children by the end of their second year, outscoring them by almost 15 points.

Vocabulary and Comprehension Test, English version: On this test, the English-dominant children scored higher than the Spanish-dominant children at all ages and for all experience levels. On the other hand, the Spanish-dominant children made greater gains than the English-dominant children at all ages, in both experimental and control groups. The three-and four-year-old Project children made greater gains than their control groups, but did not consistently score higher than the controls at post-testing.

Caldwell Cooperative Preschool Inventory: The three-year-old Project children, both English and Spanish-dominant, scored higher than their control groups at post-testing. The English-dominant Project children gained nine points, while the Spanish-dominant children gained 26 points. Their respective control groups gained 8.8 points and 4.6 points. The English-dominant Project children scored at a relatively high level at pre-testing and stayed there; the Spanish-dominant group started out lower, and made greater gains. They showed strong benefits from the program.

The four-year-olds in their first year in the program gained about 13 points, regardless of dominant language. Control four-year-olds gained less than 3 points. The four-year-olds in their second year of preschool made further gains: 26 points for the English-dominant children and 18 points for the Spanish-dominant. Their post-test scores and gains were higher than those of their control group. The children receiving two years of the program made substantial improvements over their first year increases. Two years of the program offered an advantage over a single year.

Test of English Grammar and Vocabulary: For the three-year-olds, the control groups scored higher at post-testing than either the English- or Spanish-dominant Project groups. The control groups for the English-dominant children gained more than the Project group. The controls and the Spanish-dominant group gained similar amounts. The English-speaking children, experimental and control, scored higher and gained more than the Spanish-speaking ones. For the four-year-old English-dominant children, those with an earlier year in the program outgained and outscored the control children; the children just entering the program at age four gained less and scored lower than the controls. With the Spanish-dominant children, both the groups with and without previous experience were outscored by the control group, although both experimental groups gained three items as much as the control group.

A Cultural Esteem Index was administered in the child's dominant language to a stratified sample of the children. On the Knowledge items and on Generalization, the experimental children were superior to the controls. On the Attitude and Stereotype Avoidance items, the experimental children were inferior to the control children. There had been expectations that the cultural aspect of the bilingual program for the children would influence their cultural awareness. The lack of significant differences on the measure was not seen as an indication of program failure. Rather, it was attributed to the pervasiveness of the Spanish culture around the children. The program was not shown to strongly influence the children's cultural understanding.

The same stratified sample of children was administered the children's Self-Concept Index. There were no significant differences between experimental and control children. Scores for both groups were very high.

Parent questionnaires indicated that the parents felt they had been well-informed, via handouts, school newsletters, parent meetings, and parent-community liaison conferences, about the program. Parents also seemed to be highly supportive of the program.

1972-73

The primary measure of development used in the fourth year's evaluation was the Vocabulary and Concept Comprehension Test, Spanish and English versions. There were four subtests: Color Recognition, Shape Recognition, Number Recognition, and Vocabulary. Comparison group scores came from the 1971-72 groups. No new groups were formed.

The children in their first year of the Project scored significantly higher than their no-treatment comparison group on all four subtests and made significantly higher gains on Colors and Shapes Recognition. On Numbers Recognition and Vocabulary, both the experimental and control children made significant gains.

The four-year-olds in their second year of preschool scored significantly higher than their no-treatment comparison group on Colors and Shapes Recognition; on Number Recognition and Vocabulary, the two groups scored at a similar level. On all four subtests the experimental children gained significantly. On three of the subtests, the control children made similar and significant gains. Only in Shape Recognition did the experimental children significantly outgain the control children.

The Project kindergarten children made significant gains in Color Recognition, Number Recognition, and Vocabulary. Children who had previously been in the preschool program for more than a year outscored "new" program kindergartners on the Color, Shape, and Vocabulary subtests. The "old" and "new" kindergarten children did about equally well on the English version. The old kindergartners, however, had a similar command of English and Spanish.

Kindergarten and first grade children in the special program classes were compared with no-treatment children on the Metropolitan Readiness Test. The experimental and control groups had similar levels of achievement and similar significant gains. In general the evaluation results were quite favorable for the preschool children. The preschool children made significant gains in language and concept development. Specific curriculum objectives were usually satisfied. Children who had two years of the preschool program consistently scored the highest, which was an indicator of success for the preschool program. There was evidence of increasing bilingual proficiency, as English-dominant children made larger gains on the Spanish test versions and Spanish-dominant children made larger gains on English versions. The kindergarten and grade school program showed less consistent advantages over no-treatment. There were no data on how the Project children performed when they were no longer in special classes.

The question of the contribution of the parent involvement is not clearly answerable. The parents in Year II did report increased involvement in home activities, suggesting that the program was producing changes in the parents' behavior. Also, among other differences, the fact that the program for kindergarten and primary children did not offer parents the same level of intensive training might have been one factor contributing to the diminished effectiveness of the program. At the end of the year in 1973, the "old" kindergartners performed better than their "new" counterparts. It may be that the parents of the "old" children continued to work with their children and thus gave them an advantage. It would be helpful to have measures of parents' home behaviors and teaching techniques.

One recommendation offered to the program sponsors by outside auditors was that the preschool program make greater use of the mothers; i.e., more intensively train them to be "home tutors" with their own child. It does seem that the content of the one-to-one home visits did not emphasize the mothers responsibility and capabilities as home tutors as strongly as it could have. The Bilingual Project did seem to be quite successful in involving the community it served and in mobilizing community support.

YPSILANTI EARLY EDUCATION PROGRAM

Program Directors: Raymond Kingston
Director of Special Projects, Ypsilanti Public Schools

Norma Radin
Research Associate

The Ypsilanti Early Education Program was a compensatory preschool program aimed at raising the school performance of low-income children. One hundred four-year-olds attended the preschool in each year of operation. The mothers were offered the opportunity to participate in home sessions and group meetings aimed at improving child-rearing behavior; their exact roles varied from year to year, due to experimental varying of the teaching approaches used in the group lessons and of the intensity of maternal involvement.

The target population was low-income families--both black and white. The parent program was offered to all families with children enrolled in the preschool classes. Since only some mothers accepted, self-selection may have biased the subject sample. From the available sample of willing parents, there was random assignment of mothers to the different experimental treatments formed for group parent participation.

Program Goals

For the children: The program attempted to improve the children's intellectual development and acquisition of attitudes related to school success. The program staff wanted to help children develop into self-directed, self-rewarding learners and successful, achieving adults.

For the parents: The program was aimed at improving the child-rearing behavior of the parents, so they would contribute more to their child's cognitive and emotional development. The program intended to teach parents to initiate home activities that stimulated their child intellectually and that encouraged him to develop good attitudes toward himself and learning.

Assumptions

Program sponsors identified two factors primarily responsible for the school failure of low-income children. One was the lack of responsiveness of the school. The second was the child-rearing practices of low-income parents that "produced a milieu (that was) dysfunctional for school success." The program focused on the second factor. It was assumed that although low-income parents valued academic success as much as did middle-class parents, they did not share the home behaviors that stimulated their child's development and led to school achievement. Low-income homes were assumed to be deficient in (1) role models for study skills and interest in learning; (2) parental language patterns that evoked complex levels of thinking; (3) parental encouragement of exploration; (4) discipline that emphasized inter-

nal or self-control; (5) educational materials. As a consequence, low-income children were less able to perform at school. The program attacked these home deficits through enrichment classes for the children and through training for the parents in how to make the home more stimulating.

How the Program Worked

Children in the program attended one of the Ypsilanti Early Education Program classrooms for daily, half-day sessions. Each year's classroom program lasted nine months. The program had a Piagetian base and focused on offering the children experiences to lead them from the preoperational stage of intellectual development to the stage of concrete operations. The children were offered activities to help them understand essential concepts and cognitive operations, such as seriation, classification, and time. The curriculum emphasized experiences involving a variety of physical materials, since children were assumed to develop their understanding of the physical world and of their own nature through their interactions with their environment.

Children and their mothers also received bi-weekly tutoring sessions in their homes, conducted by the classroom teacher. The teachers tutored the children in curriculum areas where extra help was needed. The mothers were encouraged to observe the teachers and initiate similar mother/child activities during the week.

Year I - Two Approaches to Group Work

In the first year of the Ypsilanti Early Education Program, parent group work was offered to mothers in addition to the home visits. Sixty-five mothers accepted, and they were matched on selected variables and assigned to one of three groups: one group attended activity-oriented meetings, one group attended lecture-discussions, and one served as a control group with no meetings. All the children attended the preschool, and the teachers made home visits to the mothers and children. The two parent groups shared the goal of changing specific child-rearing practices to behaviors that would facilitate school success. The two groups differed in the methodology of the group work, i.e., the teaching methods used to change the child-rearing behavior of the mothers.

In the activity-oriented meetings, parents were required to participate through role-playing, rehearsals of child-rearing strategies, art projects, and home teaching assignments. The group leaders raised most of the issues and planned the projects, but the mothers were involved verbally and physically in the efforts to change their teaching behaviors. Home assignments guided parents in applying new child-rearing practices, and at each week's meeting the mothers' home experiences were reviewed.

In the lecture-discussion group, identical information was offered on child-rearing, but through lectures followed by a question-and-answer period. Home assignments were also given.

The curriculum for both groups was contained in three booklets, each one a separate unit. The units increased in difficulty and abstractness.

The first unit was "Helping Your Child to Learn: The Reinforcement Approach." This unit emphasized that children's behavior was learned and that parents had the power to establish desired behaviors in their child through behavior modification techniques. The lessons in the unit informed parents about how children learned and how parents reinforced their child consciously and inadvertently. Specific task assignments in the booklet guided parents in defining the behavior they wanted to see, choosing the proper timing and type of reinforcers, etc.

The second unit "Helping Your Child to Learn: The Learning through Play Approach." This unit helped parents acquire techniques to enrich their child's play, by making the play more intellectually stimulating. The unit offered parents facts on how play contributed to cognitive development and suggested games mothers could play at home with their child, using materials in the home and based on daily routines.

The third unit was "Helping Your Child to Learn: The Nurturance Approach." This unit focused on the parent's role in the child's achievement motivation and attitudes conducive to school success (self-reinforcement, persistence, delay of gratification). Parents were taught the importance of developing a home atmosphere that nurtured the child's emotional and intellectual needs, offered a predictable, orderly world, offered good parent/child communication, and provided parental role models that encouraged learning for its own sake. Parents were given concrete methods to achieve these ends.

The two parent groups had similar curricula. In both groups, attendance was reinforced by small gifts to the mothers. Teachers in both groups were encouraged to develop warm relationships with the mothers and to offer praise for parents' efforts in adopting the new child-rearing behaviors. The activity-oriented meetings were designed to elicit more active parent participation. After the first unit, however, the groups were reported to be equal in level of active participation. The parents in the activity group had more opportunities for active involvement in skits, projects, etc., but all the lessons were planned by the teacher. The parents in the lecture group, on the other hand, had less opportunity for project-oriented activities, but undertook more active participation in directing the meetings and introducing topics of interest to them.

Distinctive Characteristics

Parents were offered different kinds of participation: observer and partner to the teacher during home visits, and student and participant in group parent education meetings. The range of roles parents were expected to play involved different levels of responsibility and expectations. In the home visits, parents were expected to start as observers and gradually move toward a more active role as partner to the teacher in the teaching. The home assignments which were part of the group lessons required full parent responsibility for the teaching, with no home visitor to act as a guide or model. In the group meetings themselves, parents were students. In general, the parent participation was highly structured by the program;

the models offered in the home visits, the group lessons, the home assignments structured the parent/child interaction in the home to conform to patterns that were considered to be stimulating and educational.

The program divided its efforts between children and parents. The preschool classes and even the home tutoring sessions were aimed at the children, while parents had their own separate curriculum and training. Parents were encouraged to consider themselves as responsible for and effective in their children's development, but they were not the sole agent of intervention. Parents and teachers were partners in stimulating the children's development.

Hypotheses

The preschool program for the children and the bi-weekly home visits were predicted to have a greater impact on parents' child-rearing and children's intellectual growth when combined with parent group work, regardless of the pedagogical method. The activity-oriented approach was expected to produce greater changes in parents' child-rearing practices on the assumption that parents would learn more from direct experience than from verbal lectures.

Results

There were 24 mother/child pairs in the activity group; 28 in the discussion group; and 13 in the control group. Children in all three groups made similar gains in IQ (9 points) from pre- to post-test. The shared experiences of the three groups in the enrichment classroom, plus the home tutoring sessions seemed to be effective in producing immediate intellectual gain. The parent group work did not add to the immediate effectiveness of the intervention. In the two groups offering parent involvement, some mothers volunteered to participate while others declined. There was a significant difference between the children of these two groups of mothers; the children of non-participating parents made no gain, while the children of participating parents did. This difference suggests how motivational variables, such as a mother's willingness to get involved, are relevant to children's intellectual performance.

The fact that the three groups did not differ significantly did not lead program sponsors to conclude that the presence or type of parent group work made no difference. Long-term intellectual benefits were predicted for the children as a main result of maternal participation in group work.

There were significant differences among the three groups of mothers. On the parent questionnaire (the Parental Attitude Research Instrument), mothers reported on their adoption of child-rearing practices that supported school-relevant behaviors. Mothers in the two experimental groups were significantly superior to the control mothers on 12 items. (The pattern was reversed on three items.) This difference was significant. Reports by the home visitors indicated that the experimental group mothers used less punishment and appeared more motivated to help their child.

Mothers who attended the group meetings had higher attendance than control mothers at the home visits, which suggested that the group work served to motivate the mothers' interest in their child's education. Program sponsors concluded that the group membership most strongly affected mothers' sense of their own competence in child-rearing. Group participation also was reported to stimulate frank discussion and thinking about racial attitudes.

Comparisons between the two experimental groups did not show significant differences in terms of attendance, children's intellectual growth or changes in the mothers. Both groups of mothers made significant gains on the Cognitive Home Environment Scale, and decreased on the Parent Attitude Research Instrument questionnaire in their agreement with attitudes "commonly supported by lower class people." When the groups were divided into those with high and low attendance and compared, differences appeared between the two group approaches. With the parents who participated in over half the meetings, teacher ratings of home visit behavior and some measures of maternal attitudes toward child-rearing favored the lecture-discussion group. There were no significant differences in IQ gain for the children of the two groups. For the low-attendance members, the trend was reversed: the activity group mothers showed more positive changes.

Program sponsors related this pattern to the kinds of interaction encouraged in the two groups. The lecture-discussion group gradually developed into a cohesive, member-directed group in which those members who did attend actively supported each other in new child-rearing behaviors and new norms. This cohesion was felt to have developed slowly and to have required frequent attendance for a feeling of involvement; consequently, this approach would have worked best with strong members. The activity approach was felt to have more leader-imposed structure and planning, and might have appealed more to less independent, less actively-involved mothers.

The Ypsilanti Early Education Program, with the Piagetian-based classroom and tutorial sessions with mother observation, was similar in design to the Ypsilanti Perry Preschool Program.[1] The immediate effectiveness for all three groups of the Ypsilanti Early Education Program was comparable to the effectiveness of Ypsilanti Perry Preschool, and confirmed the success of this approach to compensatory education. No long-term results were reported for this program; but all the groups, including the control group, might be expect to show some long-term benefits in school success if not in IQ test performance, based on results from the Ypsilanti-Perry Preschool.

The question of differential effectiveness of various pedagogical approaches to group parent training received more than one answer. On the one hand, there were no significant differences <u>on the whole</u> between the two group approaches, in terms of attractiveness to parents or effectiveness in changing mothers or children. This conclusion was not expected on the basis of design factors alone. The activity approach was expected to generate more active parent involvement and to offer more structure, which was seen as advantageous. The unpredicted enthusiasm and initiative shown by the lecture-discussion group might have been responsible for the lack of

[1] See pp. 117-124

between-group differences. Or, the two approaches might not be expected to differ substantially, as long as whole groups of mothers were compared. On the other hand, the two approaches functioned differently with high- versus low-attendance participants. Differences between pedagogical approaches might be dependent on individual mothers (their independence, motivation, attendance), length of the intervention or particular group dynamics. The program sponsors concluded that different approaches might be optimal for different parents and situations. Program sponsors also suggested that different child-rearing techniques were optimal for different individual children. Further efforts at matching intervention approaches to particular situations were urged.

Year II - Three Degrees of Maternal Involvement

In the second year of the Early Education Program, experimental manipulation of the parent component was designed to investigate the effect of the amount of parent participation. About 70 of the mothers with children in the program agreed to be placed in one of the three treatment groups, which differed in the intensity of parent involvement offered to mothers. All the children attended the half-day, Piagetian classroom.

Group I children received biweekly home visits from their classroom teacher for one-to-one tutoring.

The mothers of Group I children were encouraged to be present during these sessions and to attempt similar activities with their children during the week. Group I mothers were asked to participate also in a weekly small group meeting held by a social worker. These meetings focused on child-rearing practices that would facilitate children's intellectual and emotional development. The three curriculum units discussed under Year I were the content of these meetings. Home assignments were included in each of the units. The teaching techniques used with the parents were a mixture of the lecture and activity approaches of the previous year.

Children in Group II also received the home tutorials with parental involvement; the mothers, however, were not invited to small group meetings.

Children in Group III received the biweekly home tutorials, but their mothers were not present during the sessions.

Distinctive Characteristics

The parental involvement designated as the most intense was the combination of home tutoring sessions with the small group meetings. The group meetings would seem to offer a distinct advantage to Group I mothers in terms of intensity and level of activeness of participation. These meetings introduced specific child-rearing behaviors to be adopted, rationales for why, and particularly important, home assignments for implementing these behaviors. The home tutoring sessions offered mothers a model of behavior, but left mothers more on their own in planning and initiating home activities. The goal of the maternal involvement was for the parents

to assume the role of teacher. The form and content of tutoring sessions did not seem to encourage this role strongly. The group meetings, despite the mixed active project/lecture/discussion approach and lack of one-to-one parent/teacher contact in the training, seemed much more likely to acutally move parents toward the role of teacher. The group discussions offered concrete training and emphasized maternal responsibility.

Hypotheses

It was predicted that, in general, parent participation would have positive effects on mothers and children: the mothers would provide a more stimulating environment for their child and adopt child-rearing practices more conducive to child development, and the children would show greater intellectual development and more positive classroom behavior. The degree of effectiveness of the parent participation was predicted to be positively related to degree of intensity of parent involvement.

Results

At the end of one year of preschool, there were no significant differences among the three groups of children on the Stanford-Binet or the PPVT. All three groups had made significant pre-post gains of around 12 points on both measures. On teacher ratings on the Pupil Behavior Inventory, all three groups of children made significant gains on three of the eight factors: Academic Motivation, Creative Inquisitiveness, and Good Student Behavior. There were no significant between-group differences.

Mothers were administered the Cognitive Home Environmental Scale, and the Parental Attitude Research Instrument. Mothers in Group I increased significantly on one factor of the Home Scale, "Educational Materials in the Home", and decreased significantly on "Authoritarianism" on the Parent Attitude Instrument. Mothers in Group II increased significantly on the of "Grades Expected" on the Home Scale. These changes were in the desired direction. Mothers in Group III showed no significant change on either instrument.

Immediate results from the program indicated that there were significant differences in the amount of change in maternal attitudes and some maternal behaviors, with the most change found in the mothers who had been offered the most intensive opportunities for participation. This was true despite the fact that only 39 percent of the mothers in Group I had attended at least half of the group meetings. There was no immediate evidence that degree of intensity of parent participation was a crucial factor in the intellectual development of the children in the preschool, since all the children who attended the classes made about the same gains. It would have been interesting to have had other comparison groups without the classroom experience but with other combinations of parent participation, to assess the contribution of the preschool component versus the parent component.

Long-term results: A subset of the original sample was selected for follow-up study--one-third of the original children were chosen, after blocking the children in terms of initial IQ and selecting proportionately from each block with matching on race and sex. At the end of preschool, there had been no significant differences between the children on the PPVT. At the end of kindergarten, the mean PPVT scores were 105.2, 105.5, and 95.5 for Groups I, II, and III, respectively. Group II was significantly greater than Group III. For the net change in PPVT score after preschool, the gains were 9.7, 14.0, and -1.0 points for I, II, and III, respectively. Both Groups I and II had made significantly greater gains than III, although I and II were not significantly different. At the end of kindergarten, there were still no significant differences between groups on the Wechsler Primary and Preschool Scale of Intelligence.

Follow-up testing has been done on these same children through the third grade. Radin (personal communication) reported that the global group comparisons did not indicate significant differences between children from Group I and children from the other groups. When the children were divided into high- and low-ability, however, and when the high-ability children (those with initially higher IQ scores) were compared across groups, there was a significant difference in favor of those children whose mothers had had the most maternal involvement. Radin suggested that either the more capable children could use the additional stimulation from their mothers more effectively and/or the mothers of the more capable children provided more effective stimulation after the preschool program ended. These mothers might have been initially more effective, as seen in their children's higher IQ scores, or they might have learned more from the program. In either case, this result suggests that there was an interaction between the influence of the maternal involvement and the initial ability of the child and his mother. This is not a particularly optimistic conclusion, since the low-ability children are the most likely to fail in school and most in need of help. Radin's result also suggests that experimental groups should be broken down into subgroups and then examined; certain subgroups might show long-term effects of program components where the total group does not.

The changes occurring in mothers at the end of the program as a result of their participation did appear to be supporting their children's continued cognitive growth, on the basis of the post-kindergarten results. While Group III did not continue to gain on the PPVT during the kindergarten year, children in Groups I and II did. In the kindergarten results, however, just as in the preschool post-test results, the small group meetings of Group I were not related to additional gain on the PPVT above that of Group II. (On the other hand, there were significant differences between maternal attitudes of Group I and Group II mothers.) The third-grade results, when completely analyzed, may be more informative about the effects of the different degrees of maternal involvement on long-term changes. Radin concluded, on the basis of the kindergarten follow-up results, that the parent-education component in the preschool was important if children were to continue to benefit academically from the compensatory preschool program after it ended. On the basis of the third-grade results, the effect of the maternal involvement is less clear. The question of degree of parent involvement would have to be answered somewhat negatively. That is, children in Group I, whose mothers had qualitatively and quantitatively more intense

participation, did not show an advantage over Group II children. Factors such as age of the children might have been a factor in the small contribution of the group training sessions. The sessions themselves seemed to have some success in changing mothers, but this effect did not show up in the children's scores.

UNIVERSITY OF HAWAII INTERVENTION PROGRAMS

Program Director: Dorothy Adkins[1] and Associates
University of Hawaii Center for Research
in Early Childhood Education--Foundation Research

Beginning in 1967-68, the University of Hawaii Center for Research in Early Childhood Education was involved in developing "curricular modules" for preschool classes and parent participation components. Curriculum modules were developed in language, quantitative concepts, motivation, music, and physical activities. A number of types of parent participation components were also designed, differing in content of the parent education and in the form of the involvement--home visitation, large group meetings, work as a classroom aide. Research efforts were undertaken to test the relative effectiveness of various combinations of the curriculum modules and parent components. The principal aim of the research was to identify the most effective methods of enhancing the cognitive skills of low-income children. The Center directors wanted to help children from low socio-economic backgrounds to compete effectively with their middle-class peers in school.

The subject population involved in the experimental intervention program were children enrolled in Hawaii Head Start classes. Using Head Start classes ensured that the participating families met the criterion of low income. The program sponsors also felt that using Head Start families eliminated possible selection bias on their part; they accepted as uncontrolled, however, any selection bias that might have operated in the original enrollment of the families in Head Start, i.e., the families might have been relatively more motivated to begin with.

Assumptions

A number of assumptions about low-income parents guided the parent-participation efforts. One was that many low-income parents did not possess the basic information about child development that was supposed essential for adequate child-rearing. This lack of information, it was assumed, led to unrealistic parental expectations of the child, to a lack of properly challenging experiences offered by the parents, and to inadequate parental guidance of social and emotional growth. Parents were assumed to lack both skills and knowledge necessary to provide optimal stimulation to enhance their child's intellectual development. Programs were designed to help parents better understand child development and improve their methods of child-rearing. It was also assumed that low-income parents had inaccurate perceptions of the role of preschool and had negative attitudes toward school. Consequently, the parent programs developed by the Center encouraged parent involvement in the classrooms as a way of teaching parents about the school's goals and operation. Finally, it was assumed that parents had their own

[1]New address: Dorothy Adkins, 122 West 2nd Street, Plain City, Ohio 43064

personal needs which would be filled by the feeling of competence they would derive from program participation.

How the Program Worked

The classroom curriculum module used in a number of the intervention studies was the language module, which was based on the University of Hawaii's Language for Preschool curriculum. This curriculum was a structured language program influenced by the Bereiter-Englemann model. The emphasis was on mastery of language skills. A sequence of structured, predesigned units was used in teaching the children basic syntactic patterns and better use of their language. Three main kinds of activities were presented to the children: language-learning activities, language-strengthening activities, and physical exercises. All three were aimed at improving language development. (The physical exercises involved practice in concrete sensory-motor skills considered to be basic for language development.) Material and verbal reinforcement were used by teachers in the classroom learning situations. Other teaching techniques included questioning, dialogue tasks, and pattern practice of the syntactic forms.

The parent education component developed and used in the following intervention studies was a multiphase training program. The goal was for parents to teach their own child at home, using the methods of the University of Hawaii curriculum and focusing on content that supported the child's classroom curriculum. In the first phase of training, parents met in an intensive, teacher-directed workshop. The workshop ran for four days, one and one-half hours each day. Parents were introduced to the program objectives and to the particular curriculum their child was receiving in his classroom. The meetings were aimed at developing parental enthusiasm and momentum; positive attitudes toward the school were encouraged. Parents also began to observe in one of the Head Start classes, with special attention directed to the teacher's behavior. Parents also received training in supervising classroom activities.

In the second phase of the training, parents actually worked in a classroom as a teacher's aide. Parents were expected to apply their training in group supervision and their understanding of the curriculum. The professional teachers functioned as models of good teaching behavior. Parents also met in semi-monthly, group sessions in which the emphasis was on parents assuming a teaching role at home with their own child. Parents were encouraged to teach their child concepts that directly supported the child's classroom curriculum. Classroom instructional materials were demonstrated and interpreted to parents so as to be adaptable for home use. Home learning games were constructed by the parents. Specific homework assignments were given in some of the intervention studies. Slides and films presented information on being an effective teacher. These sessions, like the workshops, were led by teachers, but the teaching methods used seemed to offer parents more active participation than in the workshops. Role-playing, team teaching, and dialogue were the principal teaching techniques. The parent training guided parents through a sequence of experiences that initially emphasized the parent's role as student and aide to the experts and later emphasized the role of teacher of her own child.

Hawaii Program I

In 1967 a project was developed emphasizing children's language development. The Hawaiian children involved were known to speak a non-standard dialect of English, which posed a potential problem for their ability to function successfully in school. Sixteen Head Start classrooms were selected: eight received the special University of Hawaii Language for Preschool curriculum and eight received a variety of more traditional nursery school curricula. Four programs within each of these two groups were combined with the University of Hawaii parent education component. Thus, four programs had the special language curriculum plus parent education, four had the special curriculum without parent education, four had a nursery school curriculum with parent education, and four had a nursery school curriculum without parent education. All the children in the program were four years old. The intervention lasted for a full academic year.

One assumption special to this program was that the parent's teaching style influenced the child's cognitive development. It was assumed that the kind of teaching that took place in low-income homes was not effective, because the parents did not regard themselves as teachers and did not make educational use of their interactions with their child. The result of ineffective teaching was retarded linguistic and cognitive development of the children.

Program Goals

For the children: The program goals for the children were increased language and cognitive skills.

For the parents: Parents were to gain a better understanding of the child's classroom curriculum, to give more support to their child's learning in school, and to assume a more active teaching role with their own child. The program also was aimed at improving the relationship between the school and the parents.

How the Program Worked

The children attended daily preschool classes, with half of the classrooms offering the more structured, sequential language skills curriculum.

The parents who were asked to participate went through the parent training previously described. In the beginning, parent attendance at the meetings was low, so four modifications were implemented in different classrooms in order to attract parent interest. The first modification was to introduce a second period of intensive daily meetings in the latter half of the program year, with gifts and certificates of participa-

tion to reinforce attendance. A second modification was to divide the large group of parents into smaller groups, which met in the parents' homes. The third modification was to train mothers to work with new parents in place of the staff members. The fourth modification was to have two staff members conduct the meetings in a dialogue format. The reinforcement and team teaching seemed to be the most effective in stimulating parent attendance and interest and were consequently adopted.

Distinctive Characteristics

The parent component put parents in the roles of student, aide, and partner to the teacher. The parent's role changed as the training continued, and at the end it was hoped that parents were acting as teachers in their own homes. Their active involvement as supervised teaching aides plus direct training in teaching methods were planned to encourage the teaching role. No home assignments were mentioned in descriptions of this test of the parent program. A parent's participation as teachers outside of the classroom was not structured or guided by concrete tasks, nor was there any supervision or reinforcement of home efforts through home visits. Parents were encouraged to think of themselves as partners to the teachers, in cooperation with the school. The program did not emphasize parents' primary responsibility as teachers of their own children. The classes for the children away from home and the professional teacher were an important part of the intervention effort.

Hypotheses

It was predicted that the children in the special language classes would gain more on measures of language ability, general IQ, and school readiness than the children in the nursery school classes. It was also predicted that the children whose parents participated in the training would show greater pre-post gains.

Results

On the PPVT, there were no significant differences between the sixteen individual classes or between the two groups of eight experimental and eight nursery school classes. On the School Readiness Test, the post-test score for the experimental group of classes was significantly higher than that for the nursery school group.

When the sixteen classes were examined as four groups varying on both curriculum and parent education, there were no significant differences among these groups on final ITPA or PPVT scores. There were trends, however, in the predicted direction--the classes with parent training scored higher than similar curriculum classes without parent training. The parents were then categorized according to their amount of participation: attendance at more than one-third or less than one-third of the meetings. Trends showed that the children of actively participating parents scored higher, but the trend did not reach significance.

Parents were given a questionnaire both before and after the program. Those who participated in over one-third of the meetings scored significantly higher than low-attendance parents on attitudes toward school and knowledge of child development.

Reports from the program were highly enthusiastic, and program sponsors felt that the instrumentation was not adequately measuring the increased verbal ability of the program children. Consequently, post-hoc statistical analyses were done of the Verbal Encoding Subtest of the ITPA, in which samples of the children's speech had been collected. It was found that the children in the language curriculum used significantly more words and made a significantly greater pre-post change in number of words. Also, the net change in mean length of utterance was statistically significant for the experimental group.

The results after one year of the intervention suggested that both the classroom component and the parent training positively affected the children's performance. The language curriculum children showed greater general school readiness and language skills. The children's classes were designed specifically to improve language development, so the latter result seems important evidence for the value of the special curriculum. There were no significant differences among the children, however, in general IQ. The immediate results from immediate post-testing were not followed-up by long-term testing. Thus, the permanence of the gains in language skills and the relevance of the gains to actual school performance were not shown. The parent component was not significantly related to the children's scores. Parent attitudes were shown to be positively changed by parent participation, but no measures of parent behavior were reported. Long-term maintenance of gains by the children might be related to whether or not the changes in parent attitudes were accompanied by changes in actual parent behavior when working with children on learning tasks, but data on parent/child interactions were not collected.

Hawaii Program II

In 1968-69, the Hawaii Center undertook another study concentrating on the question of parent participation. Nine Head Start classes were involved. Six received the Hawaii Language for Preschool curriculum and three received a general enrichment curriculum. Two kinds of parent programs were combined with these curricula. Three of the language curriculum classes were combined with the previously described parent education component emphasizing the mother's role in the child's cognitive (and especially language) development. The other six classes, both language and enrichment, were combined with a parent component emphasizing general child development. This program involved 150 children, aged three years, eight months, to four years, eight months.

How the Program Worked

The special language program used the University of Hawaii Language for Preschool curriculum. The general enrichment curriculum was not described, except to state that it was not language-based.

One parent education component was the two-phase training program used in Program I. The training was characterized as stressing the parent's role and responsibility in the child's cognitive development. Parents were trained in teaching techniques and encouraged to do home teaching. Specific home assignments were given out during the second phase of the training, which guided parents in teaching language concepts that directly supported their child's classroom curriculum. (Program reports indicated, however, that the home assignments were poorly carried out by the parents.) Language-learning games were constructed for home use.

The child development parent component was focused on teaching parents about principles of child development. The parent involvement did not stress a parent's responsibility as teacher; teaching techniques and assignments were not given. The interaction between parent and child was not the focus; the level of parent knowledge was. This program began with an introductory workshop period. Later meetings were organized around disseminating information on child development and child-rearing. Group discussions were stimulated by films and group activities.

Parents in both programs received $3.00 per meeting as an incentive to attendance.

Hypotheses

It was predicted that the children who were exposed to the structured language curriculum would make greater improvement in their intellectual performance than the children exposed to the general enrichment curriculum. The language-emphasis parent component was predicted to be more effective than the broader parent involvement in stimulating increased child performance.

Results

All classes with the language curriculum, regardless of the type of parent participation, showed significant increases in performance on the Stanford-Binet, Caldwell's Preschool Inventory, and two subtests of the ITPA. On the Binet, the language classes significantly outscored the enrichment classes. On the Post Observation Teacher Rating Scales of classroom atmosphere, the language classes were rated significantly better in terms of cognitive input and management of individual emotional needs. Children in both curricula made significant gains on the Preschool Inventory and on every subscale of the Gumpgookies (a test of achievement motivation).

The parents were divided into high- and low-level participants in both parent programs. Overall, there were no significant differences between the children whose parents were active participants and those whose parents rarely attended. This might have been due to a relatively ineffective parent component or to the reported lack of full parent cooperation in carrying out the home tasks. There were, however, differences within curriculum types. For the children who had received the language curriculum,

the results on the ITPA favored the language-related, cognitive development parent component, although significance was reached on only one subtest. The children who made the greatest gains were the ones whose mothers were high-level participants in the cognitive oriented parent component. In fact, these children gained significantly more than children whose parents were high-level participants in the child development program coupled with either curriculum. High-level participation of parents in the child development component did not facilitate the performance of children in the language classes. For the children in the enrichment classes, parent participation in the child development component did make some contribution. These children gained more (but not significantly more) than children of nonparticipating parents on a number of tests.

In general, when children with high-participating mothers were compared, there were no significant differences between the language and general enrichment curricula. When children of nonparticipating mothers were compared, the language curriculum was favored.

The parents who actively participated in a parent component scored differently on their post-interviews. Regardless of which parent component they had been in, active parents developed an increased sense of personal power, had higher vocational and educational goals for their child, and volunteered more frequently.

On the whole, the language curriculum was significantly more effective than the general enrichment curriculum in improving the children's cognitive performance. This conclusion must remain tentative, because it is based on comparisons between curricula which were introduced into preexisting Head Start classes. The program sponsors indicated difficulties with implementing the curriculum components. Differences in teacher effectiveness existed prior to curriculum assignment, and were confounded with treatment effects. Also, teachers sometimes resented being told how to teach, e.g., in the motivation curriculum, how best to motivate children. The superiority of the language curriculum held for the children as a group and for the children whose parents did not actively participate in a parent component. However, the two curricula were not significantly different when the parents participated.

Both parent participation components benefited the parents in terms of their self-concept and attitudes. Thus, the parent participation had effects in addition to effecting cognitive gains in the children. Generally, both of the parent components had positive effects on children and their parents, but the more structured, language-oriented program appeared to be more effective. There were a number of important differences between the two parent components which could have been responsible for the differential effectiveness of the parent participation. The child development parent component was not integrally related to the classroom curriculum of the children, while the cognitive development component was. The cognitive development parent component was language-oriented and included specific training of parent behavior and concrete tasks to stimulate parent/child interaction at home. Also, parents in the cognitive development

component were given a more active role and greater responsibility. The different types of parent participation interacted with the kind of curriculum and level of parent participation in influencing the effectiveness of the intervention. The language-oriented parent training was shown to be more effective if the parents participated actively and if combined with the language curriculum.

Hawaii Program III

In 1970/71, a project was undertaken using a curriculum of three modules (language, mathematics, motivation) combined with a parent component. The parent component was included under the assumption that parent involvement functioned to sustain academic gains made by children in a preschool program beyond their first year of public school. Head Start classes with approximately 20 in each class received the curriculum modules.

How the Program Worked

In the children's classroom, the children rotated each day among three small groups and three teachers, each group and teacher concentrating on one of the content modules. The classrooms were run on a token system of tangible rewards for the children for their achievements in language and math.

The parent component was run by professionals. Each parent had a weekly visit with the teacher. The mother usually came to the school for this meeting, or the teacher would visit the home. In these meetings, the mother and teacher discussed the child's activities and progress in the instructional program. Further, parents were trained to undertake curriculum-strengthening activities with their child at home. These activities were centered primarily on language and quantitative concepts. Staff members designed and prepared materials for each parent/teacher lesson, and mothers were encouraged to introduce educational materials at home during the week.

This parent component, as compared to the previous parent training focused on the mother's home behavior to a greater extent. Training in teaching techniques was given in a one-to-one situation, with home application of methods the primary goal. Mothers did not spend time observing and aiding the classroom teacher at work. Specific homework assignments were apparently not given, although mothers were encouraged to teach specific curriculum concepts to their child. Mothers and teachers seemed to be on an equal basis in terms of responsibility, if not in terms of the level of skills attributed to each.

Main Hypotheses

It was predicted that the four components together would produce greater gains than any partial combination. The gains of children in the program were expected to be related to the area of focus of their curriculum: verbal intelligence, arithmetic, motivation to achieve.

Results

The combination program (three curriculum modules plus parent component) was compared with other preschool classes using the motivation curriculum component with a traditional, relatively unstructured preschool curriculum. On the Preschool Inventory, the Test of Expressive Language, and the WPPSI, significant differences were found favoring the combination program children. Both groups gained on each of the measures. Only the combination curriculum group, however, made significant gains on the WPPSI, the Preschool Inventory, the Test of Expressive Language, and on all but one subtest of the ITPA. The combined curriculum was thus generally effective in producing gains on verbal and intelligence measures.

To evaluate the effects in the area of motivation, the combined-curriculum group was compared with a group which had not had the motivation curriculum component, but had received a music curriculum module. The Gumpgookies test of achievement motivation was used. On one out of five factors, the motivation curriculum children were superior to those of the music group, and this difference neared significance.

The parent component was evaluated by attendance records and by the Maternal Attitude Instrument. As was expected, the individual parent/teacher visits produced high attendance. The Maternal Attitude Instrument showed significant increases for experimental mothers on their total score. There were increases on all items on the test and significant increases for selected items pertaining to maternal motivation, teaching role, and perceptions of the child's self-concept. No comparison group scores were mentioned. Records of parents' spontaneous remarks were highly favorable to and supportive of the program.

All four components were combined in the experimental curriculum in order to produce maximum benefits in the areas of curriculum focus. The question of whether the combination of all four was more effective than individual curriculum components or pairs of components was examined through a number of comparisons. Individual and pairs of the modules had been previously used with other Head Start classes. Scores from these earlier classes were contrasted with scores in the combination group. On the WPPSI, there were three curriculum combinations that produced significant gains on verbal IQ: the curriculum combining all four modules, a previous curriculum which had combined the parent participation module and the quantitative module, and a curriculum combining language and quantitative modules. The quantitative curriculum module was part of all three combinations, and the parent participation and language modules were in two each. The motivation component did not seem to be highly related. On the WPPSI, performance IQ, there were again three combination that produced significant gains at post-test: the four combined, the parent plus quantitative, and a curriculum combining quantitative and motivation modules. Again, the quantitative component was the common denominator, with the parent component appearing twice. WPPSI scores, the top three groups were the same as on the verbal IQ. Overall, on the WPPSI, the four-component curriculum and the two-component curriculum of parent participation plus quantitative were superior and comparable. In fact, the two-component program had produced higher post-test scores than the four-component one. These patterns, however must be considered as tentative, since the curriculum groups being compared differed

on a number of variables besides the curriculum.

This third Hawaii investigation of parent participation did not evaluate the independent contribution of parent participation, although the multicurricula comparisons suggested that the parent-participation module contributed to the effectiveness of the four-component curriculum. The Hawaii investigations in general indicated that their parent participation components were a positive factor in producing changes in low-income preschool children and their parents. All their parent components shared an emphasis on changing parents' home teaching behaviors and offered specific training in teaching methods felt to be effective.

LEARNING TO LEARN PROGRAM[1]

Program Director: H. Sprigle
V. Van de Riet (Research Design and Evaluation)

The Learning to Learn program was a comprehensive early education program for four-, five-, and six-year-old poverty children, designed to break the cycle of educational disability and public school failure of many low-income children. Daily preschool classes for the children offered carefully planned and sequenced experiences as a means of fostering optimal intellectual, personal, social, and motivational development. Flexible strategies for learning rather than a specific content were the focus of the program. Parents participated through group meetings and individual conferences with teachers, which were aimed at bringing the school and parents into closer cooperation and understanding and at encouraging home continuation of teaching efforts. The Learning to Learn Program began operation in Jacksonville, Florida, in 1968, after three years of planning and development. Children and their parents participated for two or three years in the program, entering when the child was age four or five and continuing through first grade. The program operated nine months each year, October to May.

The target families were recruited from black communities in Jacksonville. Families with children of the appropriate age were identified through public announcements and contacts with the school system, churches, the Welfare Department, and pediatricians. All the families involved were black and low-income. The sample of interested families were divided into experimental and control groups, matched on certain measures of children's intellectual performance.

Program Goals

For the children: The program was aimed at enhancing the total early development of the children. Three kinds of competence were emphasized: one, the development of "inner attributes" conducive to learning, such as attention, persistence, and strong self-image; two, the acquisition of cognitive skills which would make confident, independent learners (including strategies for problem-solving, observation, classification, identification, etc.); three, the development of positive, warm social relationships with peers and adults. In general, the program was interested in helping children move from the sensory-motor stage of intellectual development to the representational stage.

For the parents: The program was aimed at improving the parent/school relationship. The development of greater trust and cooperation was expected to bring the two together to work to help the children. One way the program hoped to encourage this cooperation was by increasing the parents' understanding of their child's school experiences. The program

[1]The description of this sprogram is taken from materials obtained from the Learning to Learn Program. However, in Sprigle's view, the description is not entirely faithful to the way the program actually operated.

was also aimed at teaching the parents to initiate home educational activities, with particular emphasis on the role of these activities in developing parent/child communication and warm supportive parent attitudes toward the child and his efforts in learning.

Assumptions

The primary assumption made about low-income children was that they lagged behind in nearly all phases of development, especially in symbolic functioning. No explicit assumptions were proposed about why low-income children fell behind, although the quality of the child's early environmental and social stimulation was assumed to strongly influence his development. The only characterization of low-income homes was that they were adult-centered and offered little adult/child interaction.

The program made a number of assumptions about principles of child development. The theoretical bias was primarily Piagetian: cognitive development was assumed to be an orderly sequence with periods of transition. The hypothesized sequence followed Piaget's theory: the sensory-motor period (dependence on direct action and manipulation of concrete objects) being followed by the symbolic period. Also in line with Piaget was the program emphasis on the timing and quality of the child's interaction with his world. All children were assumed to have an inner drive for mastery and competence. Successful learning experiences, properly geared to challenge but not frustrate a child, were a source of satisfaction and a stimulus to development. A general assumption about child development was that emotional and intellectual development were completely interdependent and that both should be the focus of early education.

Two assumptions about learning guided the program curriculum. One was that the learner should be an active participant in the learning and primarily responsible for his own learning. The second assumption was that the bases of the ability to be a self-directed learner were strategies of learning--strategies for acquiring information, for problem-solving, etc.

It was assumed that the early years of development were a crucial time for children to learn. It was felt that formal education should begin optimally in early childhood and should offer systematic, structured stimulation for the children's development.

How the Program Worked

The children attended preschool for three and one half hours each day. The classroom was the primary focus of the Learning to Learn intervention. The curriculum was carefully structured to offer each child a sequence of environmental stimulation appropriate to his developmental needs. The curriculum was thus based on knowledge of child development principles and knowledge of individual children's needs. The teacher was an extremely important figure. She was considered a facilitator rather than an instructor. She was responsible for guiding and structuring the concrete learning experiences for each child, ensuring that the learning was properly timed and paced. She was also responsible for developing an atmosphere of trust and respect in which children felt free to explore, converse, experiment, and actively participate. There was a strong emphasis on classroom communication: child-to-child and child-to-teacher. The teacher worked to establish open, spontaneous communication.

The children participated in two kinds of classroom experiences--large group and small group. The large group experiences involved children of heterogenous levels of development. Children had free access to a variety of materials and playmates for self-directed play. Small groups of two or three children of homogenous developmental level met with the teacher for more structured developmental games and activities. The ten or fifteen minute sessions were teacher-initiated and teacher-guided. The small group experiences were a means of individualizing the program, in addition to the sequenced curriculum.

The curriculum was presented through games, which emphasized the pleasure of learning and active participation in learning. Active manipulation and exploration were emphasized, particularly with the younger children, as a means of fostering mastery of the sensory-motor stage of cognitive development. The curriculum for the older children shifted somewhat in focus to more symbolic experiences and concepts--language, numbers, and space. The learning experiences were designed not only to guide the children's development but to increase their awareness of learning processes and thus stimulate the development of strategies for dealing with new problems. Both processes for learning (classification, attention, identification, etc.) and basic concepts (number, space) were curriculum goals.

Parents were invited to attend monthly group meetings led by the teachers. The meetings were held on Sunday afternoons so both fathers and mothers could attend. Before each meeting, parents who had not shown up were individually contacted. The main activity was the presentation of videotapes of children and their teachers in action. The tapes and discussions of them were planned to focus parents' attention on how classroom behaviors, relationships, and curriculum were related to the children's learning and development. The discussions aimed at linking the parents' aspirations for their children were the goals and outcomes of the school program. The tapes also offered parents the role model of the teacher who worked with the children in a planned, organized, successful way. Parents were encouraged to assume a similar teaching role and style with their child. The classroom curriculum was explained and materials demonstrated to the parents. Home continuation and supplementation of the school curriculum was encouraged, through home activities similar to ones in the classroom but guided by parents and using available home materials. Discussion of home teaching emphasized the total parent/child relationship and communication pattern. That is, although parents were urged to strengthen the home learning environment with home lessons, the focus was on the importance of the activities in improving parent attitudes and behavior toward learning rather than in terms of the specific content of the learning experiences for the children. Parents were encouraged to make their child feel that he and his learning efforts were important. Specific home assignments were not given.

The teachers were responsible for demonstrating the curriculum and introducing the tapes to the parents. The parents were primarily responsible for initiating and carrying on the discussions. The primary teach-

ing methods used with parents were demonstration, videotapes, and discussions. Parents were encouraged to move beyond a relatively passive student role by initiating and guiding the group discussions.

Individual parent/teacher conferences took place three times during the first grade year, in addition to the monthly meetings. Both the teacher's and the parent's assessment of the child's progress were discussed.

The group meetings and the conferences were expected to improve parent/teacher relationships and to encourage parents to develop the school's value on learning and education.

Distinctive Characteristics

The Learning to Learn program had a carefully planned, theoretically-based curriculum, which seemed to be the main vehicle of the intervention efforts. The classroom teacher was acknowledged to be the most important factor in the program's operation and success. The teacher was responsible for "orchestrating" all the other factors--the curriculum, the parents, the classroom materials, etc. The Learning to Learn program concentrated on offering the child a systematic sequence of environmental stimulation that the home could not offer. In terms of the home and parents, the program considered parents as "vital links" in the child's education. Particularly in the pre-preschool period, parents were seen as having a large responsibility in their child's development. The Learning to Learn program provided a new partner for the parents with whom to share responsibility--the school, which offered knowledge about child development and learning. The school and parents were to work together to help the child.

Parents participated in the program by learning about their child's curriculum, his school behavior, teacher/child interactions, etc. Home activities were encouraged, but parent/child interactions were not guided by home tasks, assignments, or specifically defined teaching techniques. Parent attitudes and general willingness to support learning rather than specific teaching behavior were emphasized. Parent participation and parent change were considered important to each child's optimal development; they were supportive of, but not integral to the classroom curriculum.

The program was consistent in its approach; parents and children were treated in much the same way, with the same principles. The program emphasized listening to parents, sharing with them, carefully showing and explaining the program to them by getting them actively involved in the discussions. The program was designed to make parents feel they had a part in their child's success.

Hypothesis

It was predicted that children attending the Learning to Learn program for preschool and first grade would be superior in social, cognitive, and educational development to control children who attended traditional preschool and public grade school.

Results

In 1968-1969, nearly 80 children were part of the Learning to Learn program. Half were four year olds and half were five year olds; half were in experimental groups and half in matched control groups. The experimental children attended the Learning to Learn classes for either two or three years, through first grade, and then attended public school for second and third grade. The control children attended a traditional preschool and then public school from kindergarten through third grade.

General IQ: The experimental group children made a gain of 14 IQ points by the end of their kindergarten year. During this same time period, control children remained at their pre-test IQ level. During first grade and while still in the program, the experimental children continued to gain (3 more IQ points) while the control children dropped slightly. During the two years after the program terminated, the experimental and control children remained largely and significantly different in average IQ (104-100 versus 86-85); both groups, however, declined slightly but consistently through second and third grade. At the end of third grade, 18 percent of the experimental children scored as bright, normal, or superior; none of the control children did so. Seventy-three percent of the experimental children were within or above the average range of IQ (up from 46 percent at pre-testing) versus 41 percent for the control children.

On a measure of verbal IQ (WISC-verbal) by the end of third grade the experimental children had gained 14 points. The control children had remained at their pre-test level and were 15 points below the average for the treatment group.

School achievement: A number of measures of school achievement were taken at the end of third grade. In terms of grades, 92 percent of the experimental children recieved A, B, or C level grades, while only 60 percent of the control children did so. Forty percent of the control children received failing grades. In terms of grade level, only 3 percent of the experimental children were more than one and one-half years below their expected grade level, compared with 32 percent of the control children. Twenty-six percent of the experimental children were at or above grade level, compared with 8 percent for the control group.

On tests of reading, arithmetic, and language ability, experimental children were consistently superior. In reading, experimental children were one letter grade above control children and about one and a half years ahead on standardized tests. Only 3 percent of the experimental children could not read, while 28 percent of the control children were unable to. Over three quarters of the experimental children were reading at or above grade level, compared with one quarter of the control children. There was also a letter grade difference in arithmetic, favoring the experimental children; almost 100 percent received A, B, or C grades versus

50 percent for the control children. Over half the experimental children scored within six months of their expected grade level on a math achievement test versus 14 percent of the control children. Sixty-seven percent of the control children scored more than one and a half years below grade level, while only 16 percent of the experimental children did so. On the language measure (ITPA), three times as many experimental as control children scored at or above chronological age, and half as many scored more than one and a half years below. Experimental children were superior to control children on measures of spoken and written language performance.

Personal-social measures: Teacher ratings distinctly favored the Learning to Learn program children. Seventy percent of experimental children versus 53 percent of control children were rated an having as appropriate self-concept. On ratings of achievement motivation, no experimental children scored below the minimum level necessary for school success, while 8 percent of the control children did so. Seventy-two percent of the treatment children and 45 percent of the control children were rated as showing achievement motivation predictive of school success.

Both experimental and control children were divided into average-IQ and low-IQ groups, based on their pre-test IQ scores. The same pattern of results between experimental and control groups held within both the a average and low-IQ groups. Experimental children of both levels made substantial progress and outperformed their matching control group. The experimental children who had entered the program with average IQ scores were superior to the low-IQ group.

No measures of parent attitude or behavior change were reported. Attendance at group meetings was quite high, and it was reported that parents became quite interested in and well-informed about their child's school progress, as judged from the parent/teacher conferences.

The Learning to Learn program was quite effective in improving the intellectual performance and the academic achievement of low-income children while in the program. Although the experimental group remained significantly superior two years after the program, the IQ scores of all the children declined when they were not involved in the Learning to Learn program. However, the range of measures indicating significant differences in academic achievement favoring the Learning to Learn children was impressive, as was the immediate practical importance of these group differences. The educational competence of experimental children was higher, and their cost in terms of remedial classes lower.

The success of the Learning to Learn Program was attributed to a set of integrated factors: the high degree of organization of the curriculum and its individualized approach to the children's developmental level; the teacher's behavior as an "educational facilitator"; the two-pronged classroom experience (large and small group): and the parent education. The evaluation did not specify the relative contribution of

these factors to the program's effectiveness. The importance of the parent education component is not clear. Greater parent/school cooperation and an improved perception by parents of their role in their child's development might not be predicted to influence strongly children's achievement without concomitant parental behavior changes. There were no data on the presence or absence of changes in parents' interactions with their children. The Learning to Learn program sponsors did not claim that the program produced behavior changes in the parents. The long-term effectiveness of the Learning to Learn program, however, might indicate that parents offered continuing active home support of and participation in the children's education.

A STRUCTURED LANGUAGE PROGRAM FOR TWO-YEAR-OLDS AND THEIR MOTHERS

Program Director: Marlis Mann

This ten-week experimental program (carried out at Arizona State University) was designed to develop the expressive language patterns of two-year-old children and their mothers. The children attended a preschool with a specific language program two mornings a week, while their mothers attended intensive workshops on specific language techniques during the same period. All the families in the study were black and low-income. They were selected on the basis of geographical residence (within a one-mile radius of the Head Start facilities) and on the recommendation of the school principal and Head Start director that that the families were economically depressed. Eligible families were contacted individually. In order to participate, parents had to agree to attend the weekly group sessions for ten weeks. Twenty-four of the mothers contacted (80%) elected to participate. The mothers were randomly assigned to three groups of eight mother/child pairs in each--an experimental group and two control groups. The mothers received $1.00 for each hour spent at the training center.

Program Goals

For the children: The program was designed to develop the children's expressive language skills; more specifically, to advance the children's syntactic level (for instance, with more complete sentences) and to increase the frequency of language in communicating with others. Along with and through this language development, the program director hoped to effect an increase in the children's conceptual development.

For the parents: The program was designed to train parents to use a greater variety of language interaction patterns: verbal reinforcement, extension (saying more completely what the child has said), and elaboration (adding new descriptive words when extending a children's sentences or describing something to him.) The program was aimed at increasing the expressive language functioning of both mother and child by altering their joint linguistic styles and stimulating verbal communication between the two.

Assumptions

Children from low-income or culturally-different environments are often underachievers in school. It was assumed that the low-income environment influenced their development and educational needs. In particular, the language patterns and style in low-income homes were considered to be different in crucial ways causing the children to have difficulty in school performance. The linguistic style of these homes was characterized as restricted in that parents' language interaction with their children was not used to give corrective feedback, to respond in complex ways, to communicate abstract thoughts, or to describe. Rather, a parent/child verbal interaction was most often used in a one-way manner to control the child, and there was a high usage of imperative phrases.

The restricted style and restricted uses of language were assumed to inhibit the language development of children in low-income environments. These assumptions were the rationale for the program emphasis on language training for both mothers and children. The assumption of the influence of the home environment on language development was the basis for the parent involvement in the training. Parent performance in the teaching was considered essential in order to effect changes in the parent language interaction behaviors.

The training was timed to occur when the child was formulating his basic oral language patterns, around two years of age. The intervention was designed to be developmental rather than remedial in nature. That is, the training attacked language behavior during the critical period of development rather than occurring after the crucial period of growth, as a remedy for insdequate growth. Early intervention was assumed more likely to be effective, since the target children were at an age when their intelligence had a greater plasticity.

How the Program Worked

There were three groups of mother/child pairs, eight in each group. The main experimental treatment, group I, was a structured language program for mothers and children. Group II mothers received general counseling unrelated to language learning, while the children were in a day care situation. Group III was a no-treatment control group.

Mothers and children in group I attended the training center for one and a half hour sessions, two days a week. In the first session of the week, mothers and children attended separate classes. The children were placed in a classroom under the supervision of five teachers. The children were free to choose any activity that they liked, but the curriculum in general stressed using language to name things and describe the environment. The teachers used the same interaction techniques with the children that the mothers were learning (elaboration, extension, reinforcement.)

During their first morning of lessons, the mothers observed a video-tape of the experimenter modeling an adult/child interaction. The tape was used to teach a specific language technique--verbal praise, extension, or elaboration -- in areas such as color, shape, labeling, numerosity, function. The video-tape focused on a relatively small unit of behavior. The video-tape was followed by lectures explaining the technique, by group discussion, and by demonstrations of feedback techniques. The mothers contributed suggestions for means by which the techniques might be implemented in their homes.

During the second morning of lessons each week, mothers observed the modeled video-tape from the previous session and then each practiced the technique with her child. This practice was videotaped for later presentation to the mother so that she could compare her performance to the model tape. Mothers were helped to evaluate their own learning and performance. The training for the mothers emphasized giving corrective feedback to their child as a way of developing their own language and encouraging a greater

use of language on the part of the child. After each lesson, parents checked out a picture book to take home with them to read with their child. The books were a way of stimulating mother/child verbal interaction and offered mothers an opportunity to use their new interaction skills.

Children in Group II received three hours a week of unstructured day care. The mothers attended a group counseling session that emphasized the concerns of low-income black mothers and ways of dealing with them. Issues discussed included schools, community problems, and personal feeling related to racial prejudice. The counseling emphasized a new, positive image for black mothers. The group discussion provided an opportunity for the mothers to become more expressive in their use of language. Mothers in Group E were also encouraged to check out a book after each session. This group was set up to control for the possibility of positive effects of the program's attention to the mothers, aside from the actual experimental treatment.

Distinctive Characteristics

The language treatment had a structured, carefully-planned curriculum based on learning tasks with specified outcome for both children and parents. The curriculum was focused on specific interaction techniques which were broken down and carefully taught to parents through video-tapes and demonstrations. The program was designed to give parents supervised practice in using the techniques with their own children and experience in self-evaluation. No monitoring of home interaction was done, although parents were encouraged to discuss ways of implementing the techniques at home. It was left up to the parents to initiate home teaching.

In the training, parents functioned as students learning new techniques. The kind of teaching used with the parents required their active participation--e.g., video-tapes, active practice, self-evaluation. The teachers functioned as professionals giving information to the parents. The parents also functioned as teachers themselves, using the techniques with their own children. The parents shared responsibility with the children's classroom teachers for the children's development.

The program efforts were about equally divided between parents and children. The emphasis was not on one group exclusively but on altering the behavior of both jointly.

Main Hypothesis

It was expected that the structured language treatment for mothers and children would improve the expressive language of both groups and contribute to the conceptual development of the children.

Results

Within-group changes: All testing was done by means of video-tapes of the mothers interacting with their children. The mothers and children were measured on their entering (pre-test) and leaving (post-test) level of oral language and assigned to a level of syntactic complexity on the basis of the type of sentences used. Children and their mothers in

Group I significantly increased their use of a high level of transformational grammar. The mothers increased mainly in their use of complete sentences and decreased in their use of one-word responses and imperatives. The children used fewer one-word responses and more complete sentences. Mothers and children in Groups II and III did not show significant pre-post increases in their level of grammar. Group III mothers had lower scores on each measure of syntax usage. Mothers in group I were the only ones to show significant increases in their use of feedback techniques--in particular, the use of color and shape feedback words.

Between-group differences: There were no significant differences between the groups in terms of the mothers' post-test level of syntax. However, the mothers in Group I were moving toward a more complex oral language. In terms of the language interaction patterns, mothers in Group I used a significantly greater range of language interaction types at post-testing. They used all the elaboration areas in their interactions, which wasn't true of the other mothers. Group I mothers also used significantly more color and shape feedback words with the children than mothers in Groups II and III. The frequency of responses to their children's verbalizations by Group I mothers doubled from pre- to post-testing. Mothers in Groups II and III had a large number of responses in "labeling," which indicated the lack of use of language for more than naming.

The children differed significantly in their pre-test rates of syntax usage, with Group II children significantly superior to Group I children. By post-testing, there were no significant differences in the performance of the children on this measure.

Group I children at post-testing were significantly superior to Group II children on five variables of concept understanding.

The program ran for only ten weeks, and there were no follow-up studies. The immediate results suggested that the structured language training was effective in producing significant changes in the level of the mothers' language and in style of interacting with their child. The children in the experimental training also significantly increased in their level of oral language and in their concept understanding. The training had consequences for both the semantic and syntactic development of the children. Children and mothers in the counseling and control groups showed almost no changes on the language and concept measures. Although Group II mothers had opportunities for discussion and were encouraged to engage in home reading activities, they did not significantly change. The counseling focused on the mothers as black women rather than on mothering or teaching techniques. The experimental training, on the other hand, did focus on teaching. This basic difference in the two groups might explain why the mothers in Group II did not begin to change their language patterns of interaction style with their children.

The long-term value of this on the children's academic success training program depends on at least two factors: (1) the relationship between the kinds of changes produced in the mothers and children and the

kinds of performance required in school; and (2) the permanence of the changes. It seems likely that the kinds of oral language skills focused on in this program would be relevant to school performance in a variety of areas. Longitudinal results might be more revealing of the effects of this early training, since the techniques were meant to enhance the long-term development of the children's language.

TEACHING PARENTS TEACHING

Program Directors: David Champagne and Richard Goldman

Champagne and Goldman developed a training program to improve the teaching skills of disadvantaged parents. Specifically, they trained parents to use positive reinforcement techniques to help their children learn. The parent training component was designed independently of any particular type of preschool program, but it has always operated in combination with group classes for the children. A number of applications of the parent training component have been carried-out. One, the parent training was combined with a Head Start Planned Variation[1] project in Pennsylvania. The children were four- and five-year-olds. The families participating in the training fulfilled the Head Start economic requirements and were thus low-income. Two, the parent training was also one component of the LRDC (Learning Research and Development Center, Pittsburg) Follow-Through Model. This Model operated in a number of sites with diverse populations--Minnesota, North Dakota, Ohio, Iowa, and Arkansas. The families were disadvantaged; the children ranged in age from kindergarten through third grade. Finally, the training program was pretested in Israel in conjunction with a school counseling program.

The parents who participated in the tests of the Teaching Parents Teaching program may have been relatively highly motivated. In all but the Israel test of the training, population of parents which was sampled had already been sufficiently motivated to enroll their children in a compensatory education program. The actual sample parents were those who then agreed to additional participation in this training program. The evaluation did not include randomly-assigned control groups.

Goals of the Program

For the children: Program sponsors wanted the children to be more successful learners, to do better academically, to feel more adequate, and to enjoy learning. These goals were to be accomplished by changing the pattern of reinforcement children received from their parents and teachers, and by increasing the children's basic verbal and number abilities. These new skills would improve children's chances of success in school and their perception of their own competence.

For the parents: The program was aimed at training parents in specific teaching skills which would increase their effectiveness as teachers.

---

[1] Stanford Research Institute. Implementation of planned variation in Head Start: Preliminary evaluations of planned variation in Head Start according to Follow Through approaches (1969-1970). Menlo Park, California: Stanford Research Institute, 1971.

The primary goal was for parents to adopt positive reinforcement as a teaching technique in their interactions with their child at home. Another goal for parents was to develop a better understanding of their children's school curriculum and to use their new teaching skills in teaching elements of the curriculum at home. It was hoped that parents would learn more about the structure and operation of the schools and that, as a consequence, a more positive relationship would develop between the school and the parents, with the two working together to help each child. Also, increasing parents' knowledge about the school was presumed to increase their feeling of power to affect the educational system.

Assumptions

The program sponsors recognized that low-income children commonly performed at a relatively low level in school and believed that the schools failed these children. Low-income children were assumed to enter school lacking learning-to-learn skills that were essential to school success. At the same time, the schools did not work with the families to support the children's learning. Consequently, the program was designed to train parents to teach their child learning-to-learn skills and to train parents to work with the schools.

There was a set of assumptions involving parents. What went on in the child's world outside of school was recognized as influencing his school learning, and it was consequently important to try to affect the important factors in that non-school world. Parents were considered to be among the most important influences in a child's development. The parent training was not designed solely for low-income parents, but for any parents who lacked the specific teaching skills of interest. The parent component was implemented with low-income groups, however, on the assumption that these parents lacked the skills to teach their children effectively. It was also assumed that low-income parents cared as much as middle-class parents about helping their children intellectually and educationally. Consequently, low-income parents were expected to be motivated to become involved in the children's education.

Positive reinforcement skills were assumed to be basic to nearly all good teaching, because they generated faster learning, interest in learning, and high self-concepts on the part of the learners. Consequently, these skills were the focus of parent training.

How the Program Worked

The different implementations of the parent training component at the various sites had much in common. The teachers and parent educators who were involved received a short period of intensive training prior to beginning the parent program. The training prepared them to teach positive reinforcement techniques to the parents and to supervise parents in the classroom. The training also increased teacher sensitivity to the special requirements of working with low-income parents. The teacher training used a programmed text based on the same behavioristic learning principles that

teachers later used with parents. The teacher training used short, concrete learning episodes, active teaching techniques, such as role-playing, and had explicit goals.

The parent training followed the same general plan in each implementation (although the training apparently was refined along the way). Phase I of the parent training was a short introduction to the program, the school, and the curriculum the children were receiving in their classrooms. The home teaching to be done by the parents was planned to reinforce and supplement the children's classroom curriculum. The parents were introduced to the methods of positive verbal reinforcement. The training involved a series of episodes or lessons which used teaching strategies based on behaviorist principles. Each lesson was a concrete task with a clear behavioral goal. For instance, in one lesson designed to encourage parental use of a differentiated set of reinforcers, the strategy was to have parents develop their own list of reinforcers to use with their child. In another lesson aimed at increasing the use of reinforcers, parents listened to a tape of another parent's interaction with a child, in order to learn to recognize and count positive reinforcers. Parents either taught small groups of children or simulated teaching in role-playing episodes. Parents also participated in structured observations of teachers in the classroom and in simulations.

Phase II of the training (usually lasting around two months) involved in-classroom teaching experience for the parents and group seminars for parents outside the classroom. Parents were assigned to one classroom where they practiced their teaching skills under the direction of the classroom teacher. The supervising teacher planned the lessons and "prescriptions" for the children; the parents carried them out. In the seminars, parents received further training about teaching skills, the curriculum, and the school organization. Parents were guided in the construction of teaching materials for home use and in planning home tutoring sessions. During this phase, parents were expected to integrate their new teaching skills into their interactions with children in the classroom and with their child at home. The parents were also encouraged to evaluate their own skills learning.

Phase III involved long-term maintenance of support for parents' teaching efforts. In some cases, home visits were scheduled every four to six weeks. Neighborhood parent groups were formed to meet monthly, so that the parents would reinforce each other's behavior changes and teaching efforts. The group sessions were expected to stimulate parents to apply in their home interactions the skills they had learned in school. A lending library of educational materials was sometimes an element of this third phase.

Reinforcement skills were the basic goal of the training--the use of differentiated reinforcers which were appropriate and task-specific. It was essential to the success of the training that parents used their skills in the prepared learning episodes in the school and in home learning tasks. At home, parents used both prepared activities and ones they themselves designed to meet curricular objectives. Parents were encouraged to set aside

at least ten minutes each day to work with their child on tasks related to the school curriculum.

The teaching methods used with the parents were chosen so as to (1) actively involve parents (e.g., through role-playing, videotape simulation); (2) make learning successful (through the use of positive reinforcement with parents); and (3) make learning concrete (through learning tasks, such as listing and counting reinforcers). Clear objectives and criteria of mastery were stated for every lesson. This training program was unusual for the consistency of its methods: the same methods were used in training teachers, parents, and children. There was a strong underlying belief in the potency of these methods and in the view of learning the methods implied.

The parent training activities included group training separately from the classroom, supervised classroom teaching experience, and home teaching arrangements. Program sponsors had a rationale for the combination of approaches. The initial period of parent training was meant to offer parents mastery of specific skills and of the curriculum content before their having actually worked with the children in the classroom. It was expected that parents would feel more confident due to a feeling of having learned new skills. The classroom teaching experience offered role models to the parents and close supervision of actual teaching efforts. Home teaching was the ultimate goal of the training.

Hypotheses

Parents in the training program were expected to use positive reinforcement techniques in teaching children in the school and their own child at home. Parents were predicted to use (1) more positive reinforcers and a greater variety, and (2) less negative reinforcement.

Field Test I: Parent Training Combined with Head Start

One field test of the parent training program was with parents of a Head Start Planned Variation model in Pittsburg. Parents who were interested received school-based training in positive reinforcement skills. The parents then worked in the classroom with the teacher, using their new teaching skills in working with the children on teacher-prescribed lessons. The classroom curriculum was not described in detail; it apparently involved individualized curriculum planning for each child and explicit goals for the children in terms of skill mastery. In this Head Start application of the parent training, the focus was entirely on school experiences for the parents. The focus of the direct program efforts was on the use by parents of their new teaching skills in the classroom, although the training emphasized that improving the parents' skills was a way of influencing the child's world outside the school. Parent/child interactions in the school were structured and guided by the teachers and by specific learning episodes. At home, the interactions were left up to the parents. Specific home activities were not planned, despite the fact that having parents work with their child at home on daily educational tasks was an integral aspect of the proposed program plan. Phase III of the training was apparently not

implemented in this field test. There appeared to be relatively little emphasis on transferring skills to the home or on group reinforcement of parents' behavior changes.

Results

No measures on the children were reported. The only measures reported assessed changes in parent verbal behavior from pre- to post-test. No control group of parents was maintained, so there was no way to compare the changes in parents supposedly resulting from the training with changes occurring in parents without training. The highly specific focus of the training and of the measures taken was some justification for considering the parent changes as treatment effects. No significance tests were reported on the statistical strength of changes in parents' behavior.

The analysis of parents' teaching styles was done primarily by means of audiotaped samples of the parents teaching young children. Tapes were made of 10-to-15-minute periods of a parent tutoring a small group of children. The parents were told that they were being taped as a measurement of their teaching. Before taping, they were given five minutes to examine the materials they were going to use in the tutoring. The first tutoring and taping were done before the training and served as a pre-test. The parents were all taped at least three more times during the summer program. Twelve parents were available for both the pre- and post-test.

On the pre-test, the percentage of positive reinforcers used in the time sample ranged from 5 percent to 29 percent, with a mean of 13.66 percent. The percentage of negative comments ranged from 0 to 8 percent, with a mean of 2.17 percent. These pre-test data were reported to be quite similar to pre-test data from inner-city parents who had received the same training. There was wide individual variation in parental teaching styles at pre-testing.

On the post-test tapes, 11 out of 12 of the parents showed a gain in the percentage of positive reinforcement used. The positive gains ranged from 4 percent to 24 percent, with a mean of 14.2 percent. One parent decreased from 29 percent to 23 percent. Those parents who improved the least were the ones who had shown the highest pre-test scores. In terms of negative comments, 6 out of 12 parents made fewer negative comments; 4 out of 12 increased in their use. The authors stated that these results showed a training effectiveness similar to the earlier program in the inner-city location.

The program directors did not try to directly teach the use of differentiated reinforcement, but it was hypothesized that increases in the amount of reinforcement used in tutoring would include new skill in using differentiated reinforcers. Out of 12 parents, 8 increased in the number of different reinforcers used; one parent made no change, and three decreased. The average increase was 4.75 reinforcers. At pre-testing, over one-half the parents used less than 10 different reinforcers. By post-testing, 10 out of 12 parents used greater than 10 reinforcers.

Program sponsors reported (personal communication) that follow-up studies were done on all of the original sample of parents. At the end of the academic year following Head Start, all the parents reported working regularly with their children. No long-term assessment of actual teaching skills was reported.

Field Test II: Parent Training Combined with Follow Through Programs

The parent training program was used as the parent involvement component in the LRDC Follow Through Model. The Model provided a classroom program for the children that offered individually prescribed instruction and emphasized the development of language and number concepts. Pupils proceeded at their own rate toward mastery of specific learning objectives. The use of positive reinforcement techniques by teachers and parents complemented this educational approach. The parent training followed the three-phase design described earlier.

Results

As of 1974, the Teaching Parents Teaching program had operated at five Follow Through sites for four years. Evaluation data were not available on changes in parents as a result of the program. Two kinds of changes that were expected were (1) increased amount of use and increased sophistication of use of positive reinforcement techniques, and (2) increased parental feelings of power and parental participation in school and community activities.

Field Test III: Parent Training in Israel:

Goldman, one of the original designers of the Teaching Parents Teaching program, pilot-tested the parent training in a school in Israel which was located in a community described as having "numerous social problems." The parent training was offered by school social workers to two families in which the children were doing poorly in school and parent support was lacking. In both cases, parents were trained to change their interactions with their child by increasing or maintaining a high level of positive reinforcement and decreasing negative reinforcement. The parents did substantially change their teaching techniques and the children received increasingly favorable teacher reports of classroom behavior.

Goldman felt that the initial efforts to use the parent training program in Israel were successful and promising for cross-cultural application of the program.

The various field applications of the Teaching Parents Teaching program had factors in common. The training program was characterized by a strong theoretical basis for the choice of program goals and training methods. Program sponsors had a theory of learning which guided their program design. The training was highly-structured and had concrete, specific goals, such as the increased use of positive reinforcers. In all but the Israel field test, the classroom curriculum with which the parent training was integrated was an individualized, mastery-oriented curriculum. The positive reinforcement skills being taught to parents fit in well with that

type of curriculum. It is not clear how the parent training would work with a more cognitively oriented or enrichment curriculum.

Parents in the program were encouraged to feel powerful--in their ability to guide their child's learning and in their interaction with the school. The program did not seem to emphasize parents as the most important teachers. Rather, cooperation and communication between two agents in the children's lives, parents and school, were emphasized. This approach might have functioned to decrease the responsibility parents felt to work with their children at home, although there is no evidence on this. The field applications differed in the amount of direct program focus on home activities. The lack of detailed evaluation limits quantitative statements about what difference explicit program focus made in parents' home practices.

Two aspects of this training program should be mentioned. First, there is the narrowness (or highly-defined nature) of the intervention. The focus of the training is on a small set of highly specific parent behaviors. In comparison, many other parent-involvement components are concerned with a wider set of behaviors and attitudes.

Second, the Champagne and Goldman approach to parent training assumes one best system for teaching--the use of positive reinforcement. The goal of their training plan is to introduce this technique into the parent/child relationship of any family that may lack it, not to limit the training to low-income families. Training parents to use positive reinforcement is not so much a remedy as a tool for improving the effectiveness of any parent. In general, the training program appears to have similar effects on diverse populations. This has been taken by program sponsors as an indication of both the "culture-free" character of the training and the "universal" benefits of positive reinforcement.

PARENTS ARE TEACHERS TOO

Program Director: Robert Boger

Boger and his associates developed a parent-training program that involved parents as "change agents" in their child's development. Parents attended teacher-directed workshops in order to develop and learn to use specific educational materials in home-based teaching. The parent program has been combined since 1967 with on-going Head Start programs around the country. Two field tests are reported here. The first field test of the program emphasized language development in the parent training session. The test involved 108 white children and their families from a rural Michigan Head Start program in a 12-week parent training program. The second field test offered parents a revised program emphasizing perceptual-motor development. This sample group was made up of 68 families whose children were enrolled in a Head Start program in an urban, racially mixed area in Michigan. The parent training lasted 10 weeks. Children in both field tests were four years old. The sample groups were made up of both Head Start eligible (disadvantaged) and non-eligible families, due to special waiving of the Head Start guidelines for this program. Nevertheless, over half the children in the samples were from families earning less than $4,000 for a family of four.

Treatment groups were formed by random selection and assignment of eligible parents who had agreed to participate. A randomly selected control group was "formed" using available data from Head Start children not involved in the parent-training program.

Program Goals

For the children: The intervention was intended to increase the children's general intellectual ability and language skills and to improve their self-concept.

For the parents: The program was aimed at increasing the quantity of parent/child interaction and the quality. There was emphasis on changing the language patterns parents used in their interactions with their child. Some of the program's language goals for parents included greater use of language in general, more complete sentences, more specific questions, and the ability to correct the child's mistakes. New teaching skills for parents were another goal. The program also attempted to extend the parent's awareness of the importance of a child's early year to subsequent cognitive, social, and emotional development and physical growth. Part of this new awareness was to stem from increased parental knowledge about child development.

One other program goal was greater home-school continuity in teaching techniques and goals for education.

Assumptions

The social environment of the disadvantaged child was assumed to have adverse effects on his intellectual, linguistic, and perceptual development, as well as on his motivation to learn. The particular style of communication in disadvantaged families was thought to be less elaborated, less specific and more concrete than the communication style of middle-class families, and inadequate to stimulate the child's development. These effects were assumed to be responsible for the failure of the disadvantaged child in school.

It was assumed that low-income parents were capable of and interested in learning the specific techniques and knowledge about child development.

The psychological assumptions underlying the program emphasized the importance of the early years of development in determining a child's potential. They included the importance of significant adults, particularly the parents, in these early years. The training program focused its efforts on the parents under the assumption that they were the figures likely to have the greatest effectiveness in changing the child's life and intellectual growth.

First Field Test: How the Program Worked

In the first field test, three different treatment groups were formed. Two were specific language-training groups, each with a different approach. The third group was the Placebo (control) group.

In the Developmental Language treatment group, mothers received specific materials and techniques for stimulating verbal interaction with their own child. Mothers in this group were encouraged to implement their own ideas as well. Role-playing and discussion were the primary teaching methods used with the mothers. A main objective was to increase the mother's understanding of her child's intellectual and language development as well as to provide her with additional teaching skills.

The Structured Language training treatment presented mothers with a specific repertoire of skills to apply in teaching and with materials to be used in specific ways. For example, selected sentence patterns were taught to mothers to use with their child. This group offered more didactic teacher/mother interaction and a more structured curriculum, with less emphasis on developmental principles.

Mothers in both language treatment groups were asked to spend at least ten minutes each day working with their child on the program materials. The mothers also filled out weekly evaluation sheets on the materials. Parent workshops were conducted with both treatment groups for developing materials and learning how to use them.

Mothers in the Placebo group spent the same amount of time as language treatment mothers in teacher/parent meetings, but the content of their program was a more traditional parent education effort. Group discussions were held on topics of interest to the mothers.

All three treatment groups attended weekly two-hour classes and received home visits if they missed a meeting in order to be brought up-to-date by the home visitor. All the parents were encouraged to consider themselves as partners with the teachers, working together for their child.

Hypotheses

The main hypotheses being tested by the first field study of the Parents Are Teachers Too Program were:

1. Children of parents who participated in the language treatment groups would increase in their test performance on IQ and self-concept tests.

2. Parents in the language treatment groups would improve the quality and quantity of their interaction with their children.

3. The two language approaches would have different (although unspecified) effects.

Distinctive Characteristics

The mothers in the language treatment groups were given training in teaching and verbal interaction that was concrete and specific. Home assignments guided and structured the mother/child home interactions in ways that were hypothesized to stimulate the child's intellectual development. The parent training was focused and had definite goals in terms of desired parent verbal behaviors. The teaching methods used with the parents were a mixture of more active involvement techniques--such as role playing--and more didactic ones, especially in the Structured Language group. The training for parents was combined with a classroom for the children that was separate from and apparently unintegrated with the parent program. Mothers were encouraged to think of themselves as responsible for and capable of being teachers, but they shared this responsibility with classroom teachers. Also, parents were not responsible for choosing training goals or planning lessons.

Results

On the standardized IQ test (WPPSI), there were no significant differences among the three treatment groups (Structured Language, Developmental Language, Placebo) on the Verbal Performance or Arithmetic subscales. The scores of the children in the Developmental group were the highest. On the Vocabulary, Simulation, and Comprehension subtests, both the Structured and Development Language groups scored significantly higher than the Placebo group. The average gains made by each group were no greater than the gain that would have been expected on the basis of age.

On the ITPA, there were no significant differences among the three treatment groups on any of the subtests or on the total score. Again, the

gains made on the subtests were only slightly higher than those expected on the basis of age alone.

The Brown Self-Concept Test showed no clear-cut superiority for any group.

On the Hess-Shipman Mother-Child Interaction Test, mothers in the Structured and Developmental Language groups scored significantly higher on "Total Reference to Specific Attributes." Developmental group mothers also used significantly less Verbal Negative Reinforcement.

On the MSU Tell-A-Story Test, the Developmental Language group mothers used a significantly more complex syntax and produced significantly fewer incomplete sentences during their taped teaching sessions than the mothers in the other groups. Mothers in the Structured Language group used significantly more questions (in proportion to complete sentences) and produced a significantly higher number of incomplete sentences than did the other groups. Mothers in both language treatment groups used more words than Placebo mothers.

In general, the comparisons between the three treatment conditions showed both of the language treatment groups superior to the Placebo group, although rarely significantly. This suggested that the active parent involvement and/or the home parent/child activities which were part of the language training were factors in the effectiveness of the program. None of the treatment groups, however, made substantial gains during the program period. Nor did the comparisons between the two language treatments, Structured and Developmental, yield a clear-cut trend favoring either one. Boger concluded from this that the specific content of the parent program was not a crucial factor. In this program, however, the content difference between the two language treatments may not have been great, nor did the two treatments involve kinds of parent involvement that were substantially dissimilar. Consequently, no significant differences in the effects of the two treatments might have been reasonably expected. This program may not have been a test of the effect of different contents for parent training components.

A pattern appeared in the data when the scores of the Head Start eligible children were compared with the scores of the non-eligible children. In the language treatment groups, in which mothers received specific instruction, the eligible and non-eligible children scored equally well on the IQ test, the verbal subtests, and the self-concept test. In the Placebo group, however, the advantaged children outperformed the disadvantaged. While both eligible and non-eligible mothers used an equal number of complete sentences on the Tell-A-Story test, the eligible mothers in the Placebo group used fewer than the non-eligible mothers. It seemed that within a given treatment condition, the disadvantaged child performed as well as the advantaged child only when his mother worked with him at home. The parent training helped to equalize the performance of children from two income groups.

The three treatment groups were also compared with a "pure control" group of children in the same Head Start classes. All the children in this control group were Head Start eligible, so only the Head Start eligible children in the treatment groups were used in the comparisons. On the WPPSI, there were no significant differences between the control group and the three treatment groups, although only the treatment groups gained: Structured Language group, +6.41 points; Developmental Language group, +6.28 points; Placebo group, +1.34 points; control group, -3.54 points. On the Brown Self-Concept Test, the control group made no significant gain, nor did the Developmental Language group; the other two groups made significant gains. On the Hess-Shipman toy-sort task, the control mothers used significantly fewer Total Specific Attributes than the language group mothers and significantly more Physical Commands than the other groups of mothers. The control mothers also used more Postive Verbal Reinforcement than the language group mothers. The first two differences favored the treatment groups.

The language treatment seemed to make a difference for both mothers and children when compared with the no-treatment control. The Placebo treatment group was only slightly superior to the control group, suggesting that the actual language training, rather than the increased attention to the mothers or their meetings with teachers, was responsible for the positive effects on the language treatment children.

The attendance of the mothers in all groups was quite high. It was discovered that the best predictor of the attendance percentage for the groups was not the content or kind of parent participation, but the warmth of the preschool teacher.

The sponsors felt that the data justified four general conclusions. First, the pattern of changes in the children's intellectual performance did not give clear superiority to one treatment over another, either language, placebo, or control. Second, children whose parents participated in the language training which stressed increased mother/child interaction, showed superior increases in language skills (i.e., better performance on the vocabulary subtests). Third, children whose mothers were specifically trained to interact with them increased in self-concept, if they were Head Start eligible (disadvantaged). Fourth, mothers who participated in the specific language programs increased their own verbal and linguistic skills.

Second Field Test: How the Program Worked

The second field test expanded the range of the Parents Are Teachers Too curriculum through the development of a series of perceptual-motor-oriented sessions. This new curriculum was added under two additional assumptions: one, that perceptual-motor activities were an essential part of a cognitively-stimulating sensory-rich environment which was optimal for a child's development; and two, that parents should actively provide stimulation to their child through perceptual-motor activities.

The design of this field test was a single treatment group compared with a control, or no-treatment group. Mothers in the treatment group met in weekly group sessions at which specific materials and techniques

were demonstrated by teachers. These techniques were designed to enhance the children's perceptual-motor skills. Parent lessons were handed out which consisted of written instructions and pictorial explanations on how to carry out an activity. Parents were also encouraged to implement their own ideas in using the materials. At the group meetings, parents constructed their own materials to be used at home and participated in role-playing to practice their new teaching techniques. Follow-up home visits were made to mothers who missed group meetings in order to deliver materials and lessons.

Distinctive Characteristics

This test of the Parents Are Teachers Too Program offered parents active participation and responsibility in the program. Parents were encouraged to become partners with the teachers by teaching their own children using activities planned by the professionals and by the parents themselves. Parents were offered concrete techniques and lessons to carry out. The program helped structure their home interactions with their child by means of the lessons; there was, however, no supervision of home teaching efforts. The fact that this program was always combined with an independent preschool program like Head Start might have diminished the amount of personal responsibility parents felt for the program's success and their child's growth. The Parents Are Teachers Too Program was concerned with the content of parent training. The parent training was designed to emphasize perceptual-motor activities because those activities were considered essential for cognitive growth. The specific content of the home activities seemed to be considered equally important as the process of stimulating parent/child verbal interaction.

Hypotheses

The main prediction of the second field test was that children in the treatment group would show improved scores on perceptual-motor-oriented subtests of intelligence tests and would improve their self-concept. Parents were expected to show positive changes in teaching techniques on measures of mother/child interactions.

Results

The evaluation of the second field test indicated that the major hypotheses of the program were not supported. On the perceptual-motor subtests of the intelligence measures there was no significant difference between treatment and control children. On the Brown Self-Concept Test, the control group mean score slightly exceeded the treatment group mean. No significant differences were observed between experimental and control mothers on selected variables of the Hess-Shipman Mother-Child Interaction and Tell-A-Story tests.

Parent attendance was generally lower for the second field test. The Parents Are Teachers Too Program was not integrated into the Head Start program until late in the school year, which might have worked against full parent cooperation and enthusiasm. However, the lack of emphasis on language skills and mother/child verbal interaction might also have been responsible

for the decreased effectiveness of the program in this field test. Despite the lack of statistically significant differences attributable to the treatment, a number of positive results were noted by program sponsors, such as increased parent interest in their children's education, increased pride on the part of the children, and better parent-teacher communication.

The results from the Parents Are Teachers Too Program are difficult to integrate into a general conclusion about the program's effectiveness. In the first field test, on the basis of the treatment description, greater IQ differences might have been expected than were found between the language treatment groups and the placebo group and between the language treatment groups and the control group. A number of factors might be responsible for the level of effect obtained for the language treatments: the short duration of the experimental treatment; the combining of the parent training with a Head Start program; the emphasis on content; the mixing of the Head Start eligible and non-eligible children when it appeared that the two groups were differently affected by the treatment. On the other hand, the language treatments did improve children's language skills and self-concept, as well as mothers' teaching techniques.

In the second field test, the sponsors were again interested in a particular content and changes directly related to that content. The only measures taken were of perceptual-motor development, and these did not indicate program success. The parent/child interaction stimulated by the activities might have had more general benefits for the children's cognitive development, but no assessment was reported.

PROJECT EARLY PUSH

Program Contact: J. C. Downey

Program Sponsor: Buffalo, New York Board of Education
U. S. Office of Education

Project Early Push began in Buffalo, New York, in 1966 and has operated yearly since then. It was originally planned as a prekindergarten intervention program providing disadvantaged children with enrichment experiences which would increase their chances of later educational success. The project has gradually expanded as a developmental preschool with Parent Participation and Staff In-Service Training components. Parents are offered a range of forms of participation. Besides required attendance at parent/teacher conferences three times a year and required completion of an initial survey and final evaluation, parents are invited to attend monthly workshops and Parent Council Meetings, observe in the classroom, contribute to the monthly newsletter Parent News, accompany the class on trips, and borrow from Book-Toy Libraries maintained in each classroom. The target age for the children is three years, nine months to four years, nine months. Children attend classes for half-days during the regular 10-month school year. The program operates in a number of public and parochial schools in Buffalo (14 schools in 1969, 23 in 1972). A large number of children have participated yearly--up to 850 in 1972-73.

Families are recruited from target districts in Buffalo that have a high percentage of families receiving welfare aid. Children of the appropriate age are screened for educational need. The families who are enrolled thus meet residency and age requirements, and the target children are educationally disadvantaged. No control group has been formed.

Assumptions

The project began operation in 1966 under the assumption that the disadvantaged child lacked sufficient quality and quantity of experience necessary for success in the school culture. A gap was assumed to exist between the culturally different environment of the low-income child and the school environment, a gap that led to the failure of low-income children to succeed in school. The preschool experience was seen as a "buffer" acculturation period during which the low-income children could become accustomed to the school environment.

As the project evolved, this assumption was revised to include a more complex view of the factors involved in the educational development of low-income children and the role of early education. Educational intervention was considered responsible for more than the prevention of educational failure. It was assumed to be a potent factor in stimulating development, involving parents and training staff. Young children were assumed to be able to profit from early and extended educational intervention. A preschool program organized to offer developmentally appropriate experiences was considered an important factor in facilitating children's development. Educa-

tional experiences in the home were also considered important to development, and continuity and cooperation in home and school activities was seen as necessary to optimize benefits to the children. Parental support and participation were assumed to be crucial variables in the child's school success and in the success of the school and the community.

The curriculum was based on Piaget's developmental theory. His system of stages in intellectual development were the framework for the curriculum units which were designed to be related to preceding units in a developmental sequence. The program emphasized Piaget's belief in the child as active participant in learning.

Program Goals

For the children: Goals for the daily curriculum program emphasize cognitive development (concept formation, language skills), affective development (self-image, motivation), and psychomotor development. The program is organized to move children into a greater use of representation in their intellectual operations and greater representational competency. A health program aims at physical well-being for the children.

For the parents: The program attempts to establish good communication between parents and teachers and to promote a parent/teacher partnership in educating each child. It is hoped that parents will become more supportive of their child's educational program and will become an integral part of the program by participating in the activities. The program is further aimed at improving parents' effectiveness as teachers in the home and school. The program staff want parents to become aware of their own effectiveness as teachers and their own power to participate in the educational system and in educational decisions.

How the Program Works

The children attend small classes of 18 or less. The classrooms are designed to be "well-furnished, well-ordered, responsive" environments. They are organized in open activity centers (e.g., block corner, mural corner) with open-ended creative toys and games that encourage active participation and child-initiated exploration and learning. The centers allow the children to proceed at their own rate and make their own discoveries about their environment. The materials are self-correcting and offer the children immediate feedback on the consequences of their actions. Classroom instruction is provided primarily through free play activities. Children are free to respond to their "responsive environment" while the teacher and aide work with individuals or small groups of children. In addition, there are some large group activities, but the program tries to maximize the individualization of instruction.

The curriculum is quite structured, with a set of curriculum goals and specific "activity units" designed to achieve the goals. There are three content domains of cognitive, affective, and psychomotor skill; each domain is broken down into more specific goals (e.g., eye-hand coordination

within psychomotor skill.) Each of these goals is operationalized in a set of activity units that emphasize the progression of activities from concrete to representational levels. For each unit the goals, behavioral objectives, materials, and teaching strategies are defined. Language development is emphasized in all the classroom activities.

The program is designed to foster a positive self-image for the children. Daily activities allow a child to be successful and to control his own learning. Special projects such as art exhibits are arranged to make the children feel talented and special.

As their first involvement, parents are required to schedule a conference time with the teacher and aide before classes begin. This Orientation Conference is an informal introduction to the child's program (goals, policies, procedures) and to the opportunities for parent participation. The conference serves to initiate a parent/teacher partnership through the discussion of each party's goals and expectations for the child. The conference also elicits important information from the mothers about their child and their own attitudes. From their answers on the Parent Orientation Survey, information is obtained on mothers' preferences for discussion topics at the workshops. Parents are then asked to schedule a day during the week before the formal program begins to spend time helping their child become familiar with the new classroom environment, its schedule, and the other children.

Parents are encouraged to continue classroom participation whenever possible and to contribute to a Parent Corner containing information on child development and events and happenings. Parents are also encouraged to contribute to Parent News, the monthly newsletter.

Monthly parent-teacher workshops are held--each month with a different theme. The themes are partially based on parents' suggestions in the surveys; the content is not predetermined for each set of parents. The workshops apparently emphasize parent education in child development and learning and parent training in teaching skills to be applied at home and school. Examples of workshops topics are "making learning toys" and "ways of helping and observing in the classroom." The workshops are also used for more socially-oriented activities such as dinners, etc. The descriptions emphasize the sharing approach in the workshops. Parents, teachers, and aides share their ideas in discussions that follow teacher demonstrations, slides, movies, etc.

The Toy-Book Lending Library in each classroom is the main vehicle for encouraging home learning activities. Each home receives a list of the available materials and a guide describing ways to use the toys in the home to stimulate perceptual, psychomotor and verbal skills. Parents are encouraged to use the toys to develop their child's creativity and problem-solving and a positive attitude toward learning. Verbal interaction is stressed in one of the parent workshops. Slides are shown of parents using the toys in appropriate ways. In coordination with the early workshops which emphasize parents as teachers, community aides distribute a Learning Kit to each mother. The kit includes art materials

and a book, Art in the Home, written by a former Early Push parent. The aides act as home teachers, suggesting how the kit can be used to encourage the child's development.

Midyear progress conferences are scheduled between individual parent and teachers to discuss the child's progress at home and school. A final conference is held in June of each year to discuss the child's progress and the program's effectiveness. In some cases, suggestions are offered on activities for expanding learning over the summer.

A Parent Council has been organized. About five parents from each class attend. Funding and local educational issues are discussed; recommendations are made on changes in program policies; and parents select all books and toys for the Toy-Book Library. Efforts are made to design activities to improve each parent's self-image, such as displays of art work, displays on the important role of parents, etc.

Distinctive Characteristics

The importance of parental involvement in Project Early Push has apparently increased during the project's development. In the project in 1972-73, the children's classes and the parents' program seemed to be considered equally important and to receive similar amounts or program efforts. Project Early Push offers a range of parent activities, which affect different aspects of the parents' lives and afford individual parents a chance to choose the kind of involvement that is most appropriate for them. Apparently there has been increasing emphasis on the parents' actual home teaching behaviors with their child. Home activities are strongly encouraged and materials and guidance are offered to parents. The acquisition of specific teaching techniques is not a focus of the workshops, nor is there a set of specific home assignments to be completed. The implementation of the suggested activities depends on the parents' initiative. Although there is increasing attention to home teaching, the home itself is not the main locus of contact. The parents' assumption of a strong teaching role does not seem to be considered essential to program effectiveness. The parent participation stresses parent contact with the school. Parent involvement in the activities is important primarily because it increases cooperation, communication between the home and school, and parental support for the children's learning. Parents and teachers are encouraged to think of themselves as partners, sharing and working together. Parents are given actual power in the program. All parents help select workshop topics and evaluate the program through the surveys. In the workshops, parents help plan home activities. The Parent Council has a voice in program policy.

Hypotheses

Children in Project Early Push are expected to show significant growth in cognitive and language skills and developmental gains in the areas of curriculum focus. Amount and type of parent participation are predicted to be related to a child's performance.

Results

Two years of results are presented--1969 at the beginning of program operation, and 1972-73.

In the earlier evaluation, 48 boys and 48 girls were selected randomly for testing from over 600 enrolled. No control group was maintained. Over seven chronological months from pre- to post-testing, the program children gained an average of eleven months in mental age, or 10 IQ points, on the PPVT. This gain was significant. At pre-testing on the PPVT, the children's mental age was one year below their chronological age. At post-testing, this deficit had narrowed to eight months.

The parents of these children were divided into those with active versus inactive involvement. "Active" was defined as having attended at least three parent meetings and making at least five classroom visits; "inactive" was defined as having attended no parent meetings and having made two or fewer classroom visits. It was found that children of active parents gained more, on the average, than those of inactive parents. (No significance tests of this trend were mentioned.)

There was anecdotal support from parents for the program's success, and parent attendance figures suggested that interest was high. From 85 to 95 percent of the parents made contact, and 75 percent attended parent meetings.

For the 1972-73 evaluation, a random sample of 15 percent was selected from children enrolled in Project Early Push. The children were drawn from different classrooms, but they were exposed to the same curriculum and their parents were offered participation in similar parent activities.

On the ITPA, statistically significant gains occurred on the visual subtests and on the auditory subtest (three out of the five subtests). three out of four areas in which the children scored below age norms at pre-testing, the children moved to their expected norms during the treatment period. Thus, in the children's deficit areas, they made greater than normal gains.

The Boehm Readiness test was used to assess children's readiness skills for kindergarten and primary grades. Early Push children were compared with a norm group. The Early Push children scored higher than norm children on five out of the 40+ items.

On the basis of a screening test (which the program sponsors felt should be viewed with caution), it was concluded that the program had been successful in stimulating the children's progress in level of representation. Ninety percent of the children had progressed beyond their pre-test level of concrete thinking.

A number of variables in parent participation correlated significantly with children's performance. Children's gains on various ITPA subtests

correlated with these parent behaviors: toys borrowed, parent classroom participation, parent/teacher conferences, and Parent Council attendance. All types of parent activities were associated with the children's gains; "borrowing of books and toys" reflected the most consistent correlations.

Many informal and non-quantitative measures were considered to be indications of program success. There was an increase in the number of articles written by parents in the newsletter, increased parent participation in the P.T.A. and other community programs, and an increase in the total number of parents participating--from 81 percent in 1966-67 to 100 percent in 1971-72. The parents seemed to be highly enthusiastic about the program and convinced of its benefits to them and their child.

The evaluation indicated that Project Early Push was improving the children's cognitive development and school readiness. The gains were consistently obtained across the years. Program sponsors mentioned the difficulties in obtaining measures of the effect of a program which is implemented in over twenty schools which differ in staff talents, etc. Other measures might have added valuable information about the program's effect. For example, measures of parent teaching behavior, amount of parent/child interaction, or parent attitudes such as feeling of power might show what kinds of changes are being effected in the parents. No long-term follow-up was mentioned. The increasing emphasis on parents' potential as teachers might be expected to have a positive effect on the children, especially in terms of long-term retention of gain. The pattern of correlations suggested that high parent participation was associated with higher gains for the children and that the participation in the lending library was most consistently significantly correlated. The library gave parents educational materials to use at home with their children, and active parent participation in this activity suggests active home teaching efforts.

Instead of concentrating on parent training or on any other single form of parent involvement, the project uses a range of types of activities. This may dissipate the intensity and effectiveness of any one type of activity, but it also potentially leads to positive effects on the parents in a number of areas, such as community involvement. The range of activities also offers alternatives to parents who work and cannot get involved in classroom activities.

THE PRESCHOOL PROGRAM

Program Contact: J. J. Waters
Program Sponsor: Oakland Unified School District
Oakland, California

The Oakland Preschool Program is a kindergarten-readiness program for disadvantaged children. It began in 1966 and has continued to operate since then. Children attend one of a number of Oakland public schools (12 to 18 have been involved) for classroom instruction. The sample of children who have been in the program is thus quite large. Target children are three- and four-year-olds from economically disadvantaged families. Most of the children in the program are black and from families on welfare. Parents are involved through parent-education meetings, volunteer work in the classrooms, and parent/teacher contacts. The program follows the September to June school year.

Prior to 1972, recruitment of the families was carried out by home visits to eligible families and by public notice. The Welfare Department also supplied the program with referrals. Since 1972, the Welfare Department has assumed total responsibility for recruitment of families. At the time children are enrolled in the preschool class, the mother signs a written statement that she is committed to her own and her child's full participation in the program. A variety of procedures are followed to assure that the parent adheres to this commitment, but parent participation is not "mandated". No control group was formed through random assignment at the time the program classes were formed. A control group was subsequently selected, made up of children attending kindergarten with the program children.

Program Goals

For the children: The program is designed to produce an increased potential for success in school by improving the cognitive development of the children. Progress in language and number skills, physical development, socioemotional adjustment, and communication skills are given as educational objectives.

For the parents: Stated program goals include improved parent/school understanding; increased parental interest in their child's education; and increased parent understanding of child development. Clearly defined behavioral objectives for parents were not stated in the reports.

Assumptions

The program is a compensatory education project that assumes that the disadvantaged environment is inadequate for supporting and stimulating the development of children in that environment. The Preschool Program is concerned with the result of the home deficits--the failure of disadvantaged children to acquire the necessary skills for succeeding in school. Low-income children enter school lacking language, mathematical, communication, and social skills. Disadvantaged homes presumably give children inadequate stimulation, resulting in lack of interest in learning

and lack of cognitive development. Consequently, the intervention program is designed to "enrich" the children's experiences by giving them appropriate stimulation. The learning environment is seen as crucial in the children's growth.

Parental support of education is considered to be important for the child's success and for the effectiveness of the educational system. Low-income parents are assumed to lack contact with and knowledge about their child's education.

How the Program Works

The children in the program attend daily preschool classes for half days. The theoretical basis for the curriculum and the amount of classroom structure varies among the sites. Classroom activities employed for the development of cognitive skills include manipulative play with puzzles, dramatic play, science experiences, reading story books, language exercises using Language Master materials, and community excursions. Enrichment of the child's experience is expected to expand the children's knowledge, stimulate their interest and curiosity, and increase their cognitive development (especially conceptual and language development). New experiences are also intended to improve the children's socio-emotional development.

The first goal of the Oakland Preschool Program is to improve the cognitive development of the children. The second goal is the improvement of parent/school understanding. Parents are involved primarily for their potential as "supporting resources" for the school and their child's education. Prior to 1974, one teacher was assigned to supervise parent educational activities and one teacher was assigned to supervise curriculum and staff development activities. All teachers were expected to spend 9-3/4 hours per week planning and implementing parent education and involvement activities, including home visits. Community assistants were hired to carry out home visits when necessary (although home visits were not a regular part of the parent/school contact). In 1974, budget cuts resulted in the assignment of responsibility for supervision of curriculum and parent activities to a single program coordinator. Additionally, community assistant services are no longer a program feature.

The program offers parents four ways of getting involved, all intended to improve home/school relations. First, parents are encouraged to bring their child and pick him up at the Center in order to ensure daily contact with the teacher. Second, parents are invited to act as a teacher aides in their child's classroom two days each month. The teacher provides training to parents during meetings and home visits prior to their participation in the classroom. An example of the kind of duties assigned to parents was given in one program report: "Often teacher's aides helped pupils' language development by stimulating discussion while pupils were engaged in learning experiences." Aides apparently function to individualize the classroom supervision and to reinforce children's language but are not given much planning responsibility. Third, monthly group parent meetings are organized. Parents are given information about the program, the functions of the staff, and the progress of their child in the program. Parent education is also offered on nutrition and

child development. Resource people speak to the parents; films are presented; workshops sessions are held. The meetings combine a lecture format with teacher-led parent discussions. Fourth, a parent advisory council meets monthly to act as a liaison between the school administration and staff of each program site. This council helps formulate recommendations for program objectives and ways to involve parents. Questionnaire responses (reported in 1972) indicated that there was confusion on the part of both teachers and parents about the exact role of the parent advisory council. The council did not seem to be a strong component of parent involvement. The council was reorganized in 1972 to have greater involvement in activities such as program needs assessments. Home visits are also made by community assistants when parents are unable to participate in the classroom regularly or when children require reinforcement of classroom learning experiences because of illness or other reasons that prevent them from attending school.

From 1966-1973, intensive parent involvement was offered to one parent from each class who was elected "parent leader". These leaders met monthly in their own parent group specifically designed to develop their leadership potential. The parent leaders helped plan parent involvement activities.

Distinctive Characteristics

The program's main activity is a classroom enrichment program. Parent participation is secondary. Although many different avenues of participation are planned, parent involvement is not highly structured. The parent's participation is considered important in building a more supportive learning environment for the child. The main emphasis is on change in parental attitudes and knowledge; behavioral changes and home interactions are not targets of the parent education. Parents are encouraged as supporters rather than change agents. The classroom teachers are the main agents of intervention in the child's development. Correspondingly, the family's contact with the school generally takes place at the school itself. Parents function as aides to the experts and as students.

Hypotheses

Children involved in the program are expected to show significant gains in performance on standardized intelligence tests at the end of intervention and to perform significantly better than control children.

Results

Child measures: In the 1967 evaluation of the Oakland Preschool Program, three groups of children were compared. The groups were E1, 30 pupils who had had three semesters of the program; E2, 31 pupils who had received two semesters of the program; E3, 31 different pupils with two semesters of the program and a different schedule of post-testing from E2. A control group of 81 children was made up of the children who had not attended preschool but were in the same kindergarten classes as the program children. The experimental children who were tested were selected randomly from the pool of children in all the Oakland Preschool classes. The

control children were apparently randomly selected from the kindergarten classes. The control children were from low-income families and lived in the same neighborhoods as the experimental children.

The main instrument used in evaluating program impact on the children was the Pictorial Test of Intelligence. The control group mean score was 82.9 points (tested in fall of kindergarten). The children with three semesters of the preschool program had an average score of 92.4 points when post-tested in fall of their kindergarten year, after a summer vacation. They had made a significant gain of 7 points over their pre-test scores three semesters earlier and scored about 9 points higher than the control group. The children with two semesters of preschool experience were divided into two groups: E1 group was post-tested in June, at the end of the program (E2) and E2 group was post-tested in fall, after summer vacation (E3). E1, tested before summer vacation, had a mean score of 93.4 points. They made a significant pre-post gain of 13.4 points and scored about 10 points higher than the control group. E2 had a mean score of 90 points. Their pre-post gain was 5 points, which was also significant. All three treatment groups had post-test mean scores significantly greater than the control group mean score. With no pre-testing of the control group, we do not have a measure of the gains attributable to maturation, independent of the intervention.

The preschool program had a beneficial effect on IQ performance. The group with the highest post-test score, E2, had had two semesters of the program. The superiority of E2 over E1 with three semesters, suggested that the effects of the program did not continue to increase with more of the intervention. The superiority more likely was due to the testing schedule. E2 children were tested immediately at the end of the program, while E1 was tested after a summer vacation. The comparison between E2 and E3 also suggested that the effects of the program began to diminish rapidly after the intervention ended.

In a later evaluation report, the Caldwell Preschool Inventory was used for assessing the impact of the program. In the 1971-72 program, 87 children were given the Inventory during their second and eighth months in the program. This group showed significant gains, moving from the 62nd to the 91st percentile on mean score. When compared with a norm population (1,500 Head Start children across the country), the Oakland program children at the median were 9 percentile points above the norm at pre-testing. At post-test, the Oakland children were 41 percentile points above the norm. While the norm children made no change over six months, Oakland preschool children in every quartile gained at least 12 points.

Teacher ratings on children's behavior changes in the classrooms showed statistically significant positive shifts for the treatment group on all items. Examples of items on the tests were Communicating Need for Help, Verbalizing Requests Meaningfully, and Understanding Simple

Stories. This measure, however, is subject to the possible bias involved in having program teachers rate their own children.

The long-term effect of the Preschool Program is currently being assessed as part of a state-wide evaluation.[1] The 1972-73 School District Follow Through Program Study indicates that experience in the Oakland Preschool Program increased children's growth in the Follow Through Program. Kindergarten children with preschool experience achieved significantly higher mean TOBE mathematics and language scores than children with only Follow Through or Preschool Program experience. Additionally, first grade Follow Through children who received one year of preschool experience achieved significantly higher mean Cooperative Primary reading and mathematics scores than were received by children with lesser amounts of such experiences.

Parent measures: Parents were asked to fill out questionnaires, and they were also interviewed. Data were collected each year for a random sample of parents. Eighty-six percent response from the parents permitted generalizations of results from the questionnaires and interviews. The responses from these were extremely favorable, and the level of parent participation in the various activities was high. It would be interesting to know whether there were performance differences between children whose parents were parent leaders (the greatest amount of parent involvement) and those whose parents were not, in order to assess the immediate cognitive effect of having a parent involved in school in these ways.

In 1967-68, a "Parent Contact Study" was undertaken to determine whether there was a relationship between the frequency of parent contacts, the length of time in the program, and parents' evaluative opinion on the program activities. Teachers' monthly reports of parent involvement were the source of the data. Parents were divided into Low versus High Contact groups and two versus three semesters with the program. Interviews were done with the four resulting treatment groups. The interviews indicated that more than 60 percent of all staff contacts experienced by Low Contact parents were with the nurse, while more than 70 percent of the High Contacts were with the preschool teacher. For all groups of parents, a high percentage of their teacher contact was the result of parent classroom participation. There were no data taken on the relationship between the children's achievement and their mothers' level and type of school contact.

Ninety-four percent of all parents felt that the program had given their child a better chance to succeed. There were only minimal differences among the responses in quality of quantity of evaluative opinion between the two- and three-semester parents and the High and Low Contact parents.

The evaluation design and choice of treatment groups to be compared were selected to evaluate the effects of a) time in the program and b) maintenance of program effects in kindergarten. Only a global compari-

[1]From personal communication with the program contact person.

son was made between the program children who received the enrichment experiences and whose parents participated in any number of the parent involvement activities, and the control children who had had heterogeneous experiences (excluding formal schooling) previous to kindergarten. Only one kind of experimental group was considered, that which received all of the program components. This excluded questions about the importance of each of the factors separately.

The Oakland Preschool Program produced immediate cognitive gains for the children. Its long-term impact is still being evaluated. The data suggested that children did not maintain their gains in IQ performance over the summer vacation, but there was some indication that the program increased the children's potential for success in later learning situations. The parent activities were favorably viewed by the parents; participation might have effected changes in attitude or life style, although no statistical analysis was undertaken. It is not clear how the form of parent involvement in this program may have contributed to the children's immediate gains.

THE EFFECTIVENESS OF PARENT TRAINING PROGRAMS

The evaluations of programs selected for review in this report were for the most part internal assessments--that is, they were planned and conducted by the staff of the programs themselves. This summary is an attempt to present the findings of each of these evaluations at more or less face value but at the same time to comment on features of the design or procedures which may lead the reader to draw his or her own conclusions about the validity and generalizability of the findings. Evaluation is a type of semi-research, an attempt to discover in a systematic fashion what relationships, if any, existed between the program inputs and subsequent outcomes in behavior of children or their parents. The initial purpose of these programs, however, was not to do research so much as it was to influence the developmental resources of the children and parents involved. In some instances, the rigor of the evaluation design was consciously sacrificed for the good of the overall program or from respect for the rights and feelings of the people involved. We would probably agree with such decisions and have taken a similar approach. In examining the data that evaluations produce, however, one must also note the circumstances that might significantly diminish the usefulness of the results obtained. In short, we take the position that the results are to be taken seriously, but interpreted in light of the methodological compromises that may have been necessary.

The fact that these were self-evaluations is of interest on both common-sense grounds and from evidence of experimental effects (Rosenthal, 1966). While the consistency of the findings seems impressive, in a sense the jury will be out until external evaluations corroborate the profile of results.

Overall Effects of the Programs on the Children

Intervention education, especially with young children, has established a reputation for producing immediate effects which fade out by the time of follow-up testing (Wolf & Stein, 1967; Campbell & Frey, 1970; White et al., 1973). It has been relatively easy to show initial or short term gains in "cognitive" areas of language development, concept development, problem solving, pre-math skills, and other behavior relevant to school performance; social or affective aspects of behavior have not usually displayed comparable gains (Cicirelli, 1969; White et al., 1973). There are some exceptions to this general pattern (see Bronfenbrenner, 1974; Stallings & Kaskowitz, 1974), but the trend is familiar. It is worthwhile, then, to indicate the areas in which the results of evaluation are to be reported here and the conditions which may mitigate the impressiveness of the results.

The staff of the programs described in this report used both ad hoc and normed standardized assessment instruments to examine the impact of their curricular efforts. There are obviously sound arguments for the use of specially developed tests and for criterion-referenced devices; these measures serve special purposes for the program staff. To facilitate

cross-program comparisons, even in the low-key way attempted here and to make it possible for readers to interpret for themselves the meaningfulness of the results, this summary relies for the most part on the instruments which are more widely known and for which some standardized information is available. We recognize, of course, that the norming procedures for many "standardized" tests may be faulty, especially with regard to the inclusion of low-income and minority children, and data from the tests must be interpreted or accepted with caution.

The evaluation carried out by local staff members often covered areas other than the familiar cognitive performance measures. This review, however, is primarily limited to the cognitive areas. The rationale for this decision is that the assessment measures in non-cognitive areas are of dubious reliability and difficult to compare from one program to another. Comparability of the behavior measured, disregarding the variety in measuring instruments, was so limited that it was not worthwhile to attempt to summarize these results.

In evaluating parent training programs, the feature which contributes more credibility than any other is the timing and nature of the outcome measures. Two types of measures are accepted here for evidence of children's gains--test results and data on school performance. (The measures accepted as providing evidence on changes in parent behavior are more varied.) All of these measures are subject to the comments and criticisms that attend their general use--the need for training testers, the importance of having testers of backgrounds similar to those of the children in terms of SES, culture and ethnicity, limitations of the areas of behavior covered by the instruments, and so on. These are acknowledged in passing, but it is not our purpose to discuss them here.

The essential element of the outcome testing is the degree to which it permits conclusions about the persistence of the effects, if any, that have been achieved by the program. The evaluations reviewed here are grouped in a very crude fashion into two categories--those that assessed gains at or before the end of the program (immediate testing) and those that carried out additional measurements after the program had ended (follow-up testing). The importance of follow-up testing derives from the literature on intervention, some of which suggests that the fading out of the effects of the program is common.

The criteria used in evaluating the effectiveness of the programs focus on outcomes assumed to be relevant to school performance, since increased school performance is the ultimate concern of these intervention efforts. The criteria are:

Are there immediate advantages on intelligence tests for program children compared with control (non-program) children?

Are there long-term advantages on intelligence or achievement tests for program children compared with control children?

Do indicators of performance in school show an advantage for program children compared with control children?

The summaries of the evaluation results are grouped by (a) immediate outcomes in children's performance; (b) long-term advantages shown by follow-up testing; (c) level of school performance, including both academic and social areas.

Immediate Outcomes on Intelligence Tests

Of the 29 programs included in the program summaries, all but three[1] compared the pre- and post-test performance of program children or program and control children on standardized intelligence tests. Of these 26 programs, 23 produced either significant differences between program and control children or significant gains for program children by the immediate end of the intervention (see Figure 1). Thus, programs that train parents as teachers of their own children are successful in producing significant immediate advantages for program children. (In addition, the programs that used either nonstandardized measures or measures other than standardized intelligence tests reported significant advantages for program children at the end of the intervention.)

It is possible that the immediate effect of these programs is due to factors not related to the specific treatments. All of the programs provided a type of social reinforcement in the form of increased attention paid by the program staff to the families involved. All of the programs were experimental and new, probably with an enthusiastic committed staff, new equipment, funds, and other signs of a new and promising venture. Some of these may create a Hawthorne effect,[2] in the program staff if not in the families, which may be an effective common feature in the programs. The potential effects of nonexperimental factors, such as social reinforcement from the staff and from school personnel, are confounded with the treatment effects in most of the evaluation designs. The two-group, experimental vs. control design, does not usually separate the two types of effects. The effects of the programs may accrue from these nonexperimental factors.

Long-Term Outcomes

Of the 26 programs using standard measures, follow-up testing was part of the evaluation plan of nine, and four additional programs indicate their intention to carry out follow-up testing in the future. As used here,

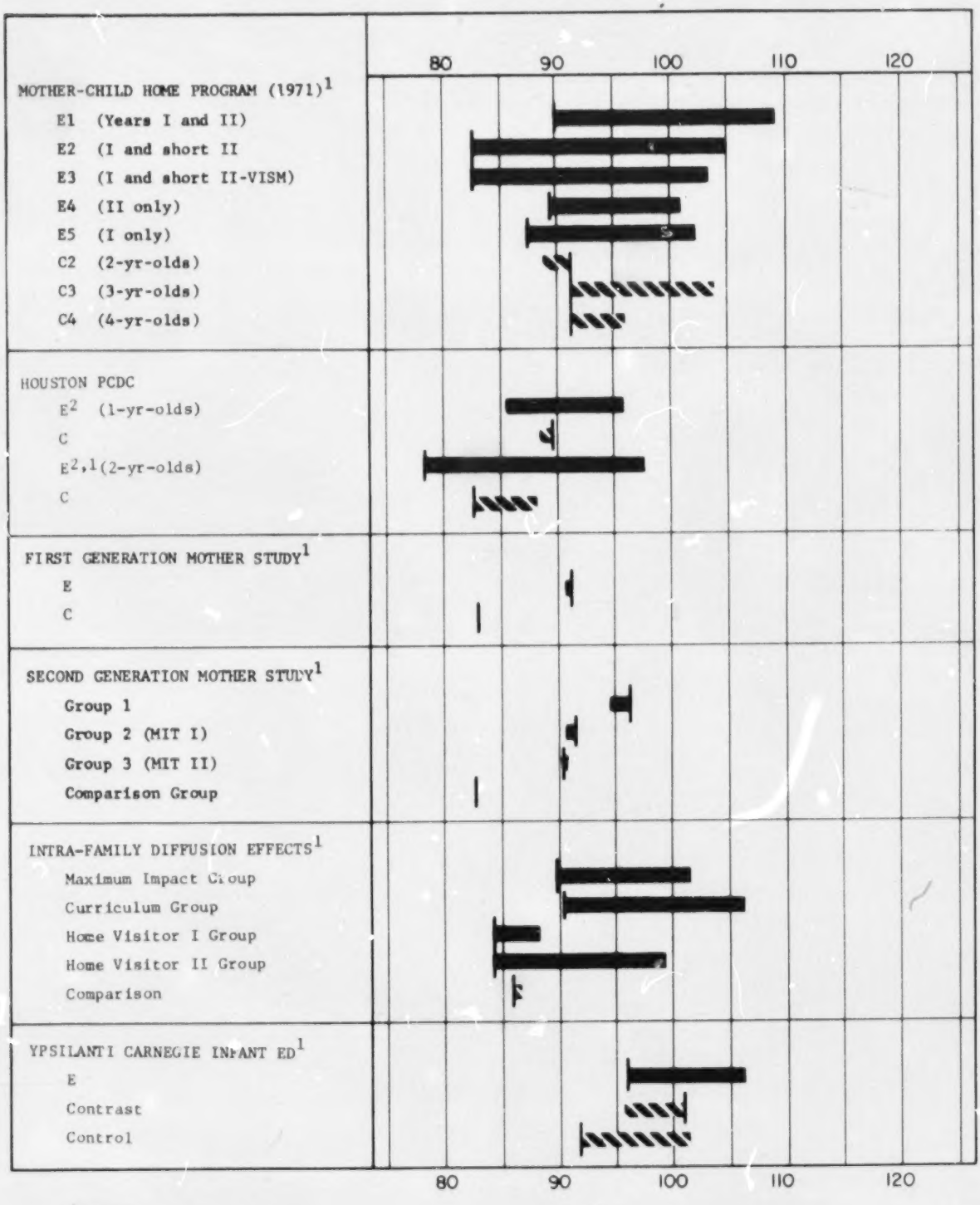
---

[1] In the Parent-Child Course, no control group was formed. The sponsors did not want to operate their program in an experimental mode, i.e., using community participants as "subjects" and forming a control group receiving no treatment. The Structured Language Program compared program and control children but did not use a standardized intelligence test. The available reports on the Teaching Parents Teaching program did not include data on children's performance.

[2] The Hawthorne effect is "an increase in motivation deriving apparently from an increase in a group's morale because the group perceives itself as receiving special treatment" (Good's Dictionary of Education, 1973).

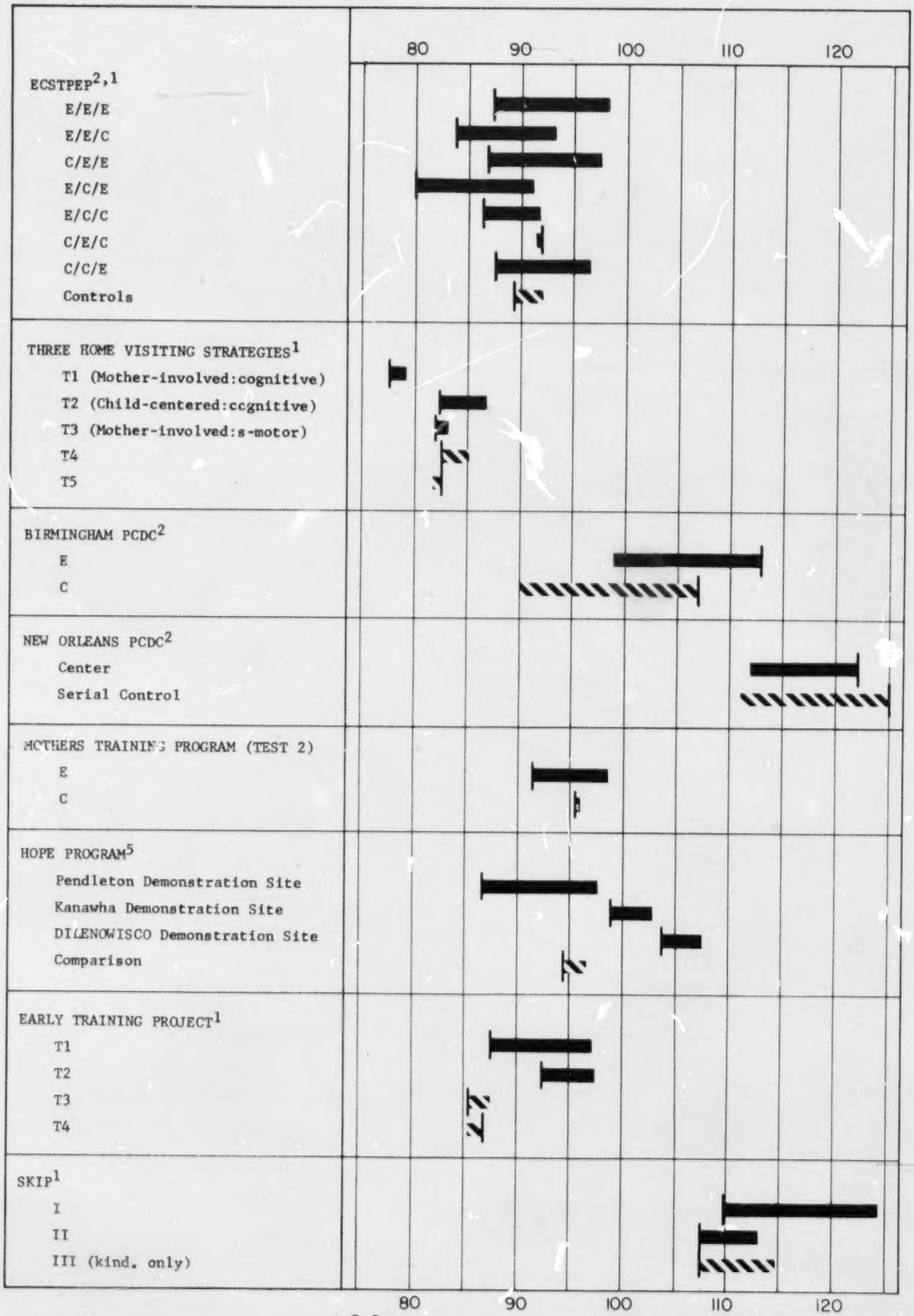
FIGURE 1

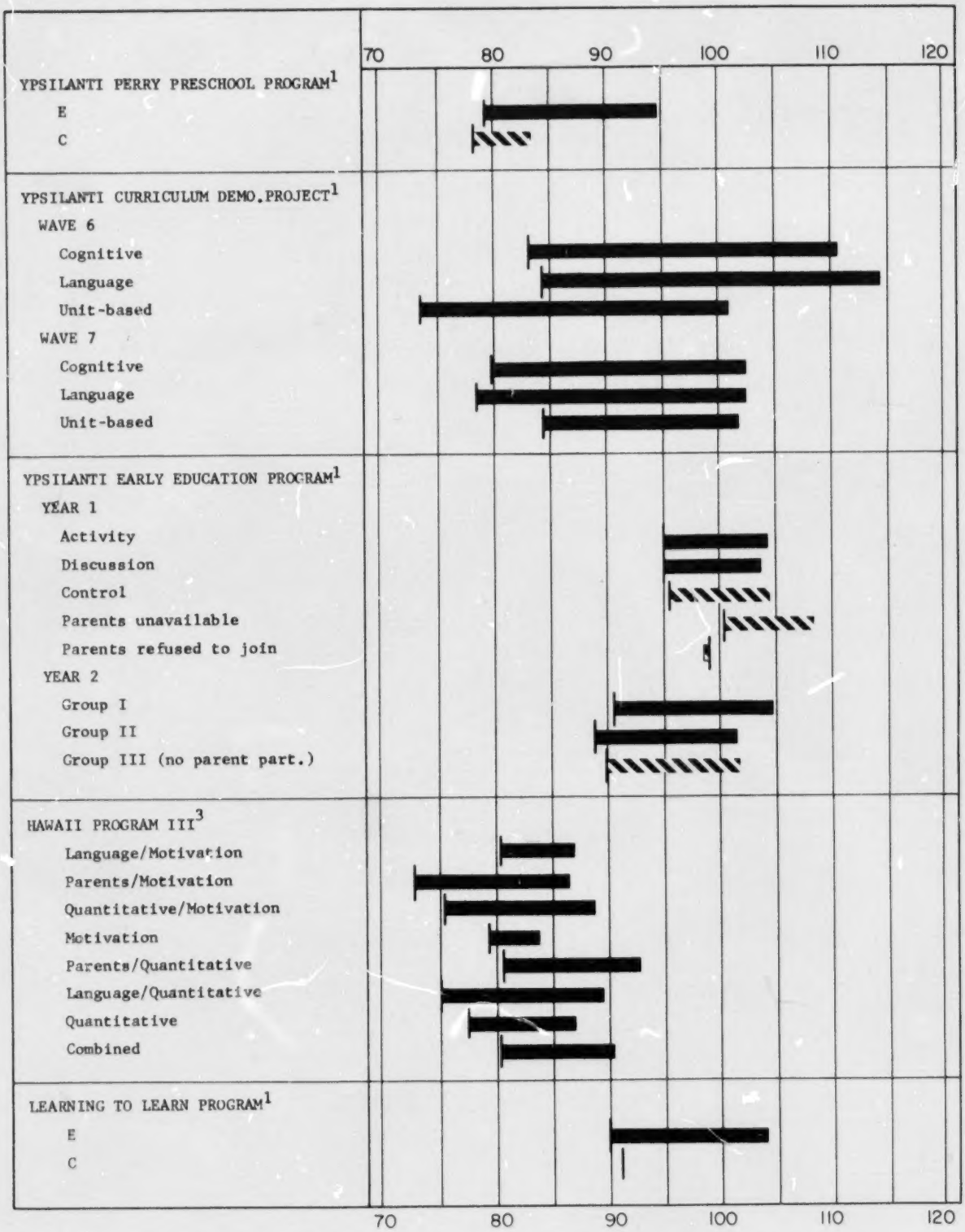
IMMEDIATE GAINS ON STANDARDIZED INTELLIGENCE TESTS

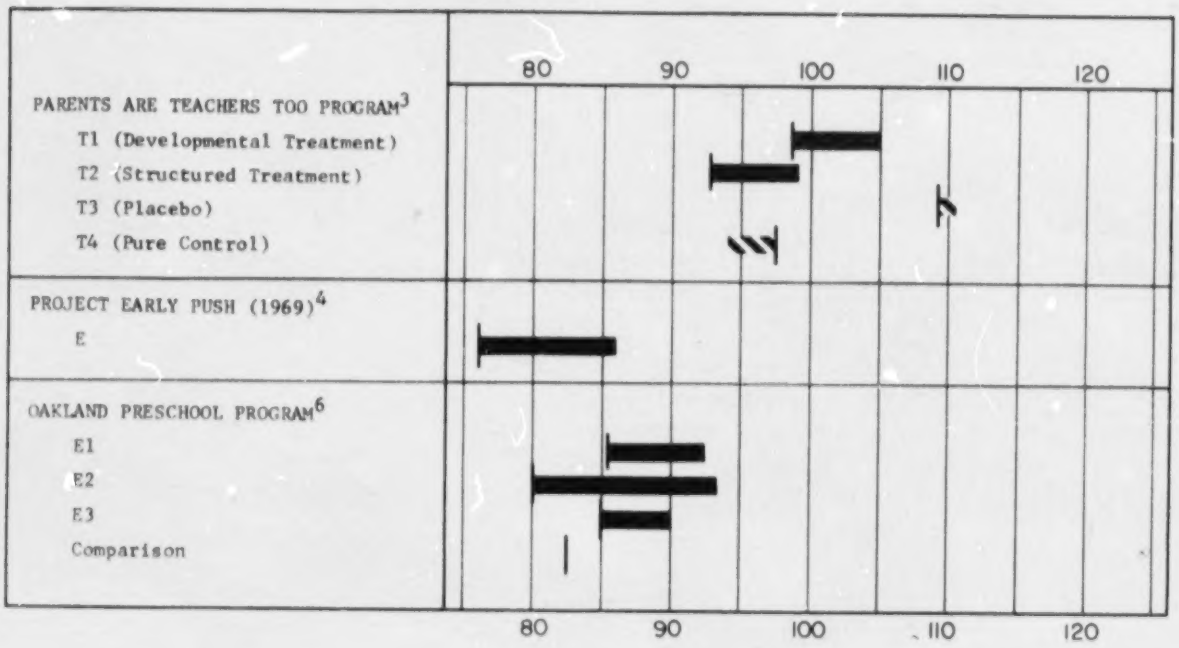


= program group
= control group; | = only post-test score available

1 = Stanford-Binet
2 = Bayley MDI
2,1 = Bayley MDI pre-test; Stanford-Binet post-test
3 = WPPSI
4 = ITPA (reported only when 1,2, or 3 is unavailable)
5 = PPVT (reported only when 1,2, or 3 is unavailable)
6 = Pictorial Test of Intelligence (reported only when 1,2, or 3 is unavailable)


80
90
100
110
120
ECSTPEP[2,1]
E/E/E
E/E/C
C/E/E
E/C/E
E/C/C
C/E/C
C/C/E
Controls
THREE HOME VISITING STRATEGIES[1]
T1 (Mother-involved:cognitive)
T2 (Child-centered:ccgnitive)
T3 (Mother-involved:s-motor)
T4
T5
BIRMINGHAM PCDC[2]
E
C
NEW ORLEANS PCDC[2]
Center
Serial Control
MOTHERS TRAINING PROGRAM (TEST 2)
E
C
HOPE PROGRAM[5]
Pendleton Demonstration Site
Kanawha Demonstration Site
DILENOWISCO Demonstration Site
Comparison
EARLY TRAINING PROJECT[1]
T1
T2
T3
T4
SKIP[1]
I
II
III (kind. only)
80
90
100
110
120


70
80
90
100
110
120
YPSILANTI PERRY PRESCHOOL PROGRAM[1]
E
C
YPSILANTI CURRICULUM DEMO.PROJECT[1]
WAVE 6
Cognitive
Language
Unit-based
WAVE 7
Cognitive
Language
Unit-based
YPSILANTI EARLY EDUCATION PROGRAM[1]
YEAR 1
Activity
Discussion
Control
Parents unavailable
Parents refused to join
YEAR 2
Group I
Group II
Group III (no parent part.)
HAWAII PROGRAM III[3]
Language/Motivation
Parents/Motivation
Quantitative/Motivation
Motivation
Parents/Quantitative
Language/Quantitative
Quantitative
Combined
LEARNING TO LEARN PROGRAM[1]
E
C
70
80
90
100
110
120



The following programs are not included in Figure 2 for one of two reasons:

(1) Programs which reported post-test scores only
- Hawaii Program I
- HOPE Program (field testing)
- Infant Intervention Study
- Mothers Training Program (1st test)
- PATTP (2nd field test)

(2) Programs which did not report standardized intelligence test scores
- Parent/Child Course
- Spanish Dame Bilingual School
- Structured Language Program
- Teaching Parents Teaching Program

"follow-up testing" refers to assessment after the program intervention has ended. Time lapses before (or between) follow-up testing sessions for the programs included in this summary range from three months to five years. The meaning of a three-month follow-up as evidence of permanent changes is different in some ways from a five-year follow-up. In summarizing long-term results, then, the programs are grouped roughly into intermediate and long-range categories, according to the time intervals between the end of the program and the first follow-up testing. Figure 2 represents the pattern of follow-up testing by the nine programs in the long-term category.

Long-term results in children's performance are especially important as sources of evidence for evaluating programs that propose to change the behavior of parents. One of the central arguments for parent training is that changes in parent behavior will offer continuing support for the child's development and will be applied to subsequent children, if any. These changes give parent training programs a potentially larger audience than do any programs of intervention directed only at children themselves. The test of the effectiveness of parent training programs will be even more convincing when it includes evidence of long-term changes in parents' behavior toward young children.

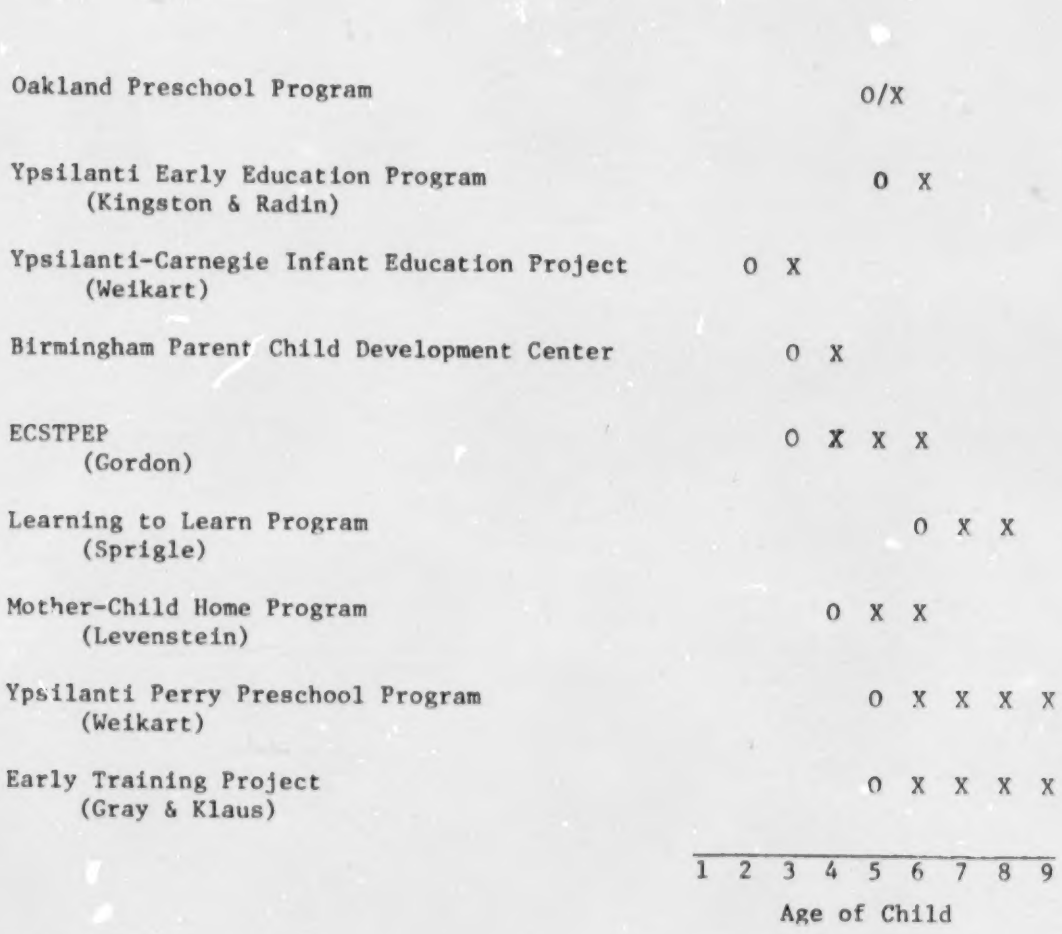
Results from standardized intelligence test performance: The nine programs listed in Figure 2 carried out follow-up testing of children's intellectual performance. Figure 3 shows the results obtained by these programs on IQ tests (usually the Stanford-Binet). Seven of the nine programs reported positive or significant differences favoring the program children in follow-up testing over varying lengths of time.

Two of the programs carried out follow-up testing four or more years after the intervention ended: the Ypsilanti Perry Preschool Program (Weikart) and the Early Training Project (Gray). In the Ypsilanti Perry Preschool Program, children were tested several times up to the end of their third grade year, by which time they had been out of the program for four years. In third grade, there were no longer significant differences between program and control children in average IQ score, although there had been significant differences in testing previous to that point. Children in the Early Training Project were followed-up through fourth grade, five years after intervention had ended. There was a small but significant difference between program and control children at the end of fourth grade. In both of these programs, the between-group differences which were significant at the immediate end of intervention began to decline after the intervention ended.

Three programs carried out follow-up testing two or three years after the end of intervention: (1) Children from the ECSTPEP (Gordon) have been followed through first grade, three years after terminating their participation in the program. At that time, they were still significantly superior in average IQ to the control children, and the between-group difference had remained at about the same magnitude. Children who had participated for the full three years retained nearly all of their original ten point gain in IQ. Children with fewer years of participation declined, although all but one group were superior to the control group. (2) In the Mother-Child Home Program (Levenstein), program children have been followed through

FIGURE 2

TIMING OF FOLLOW-UP TESTING FOR PROGRAMS THAT CARRIED OUT TESTING

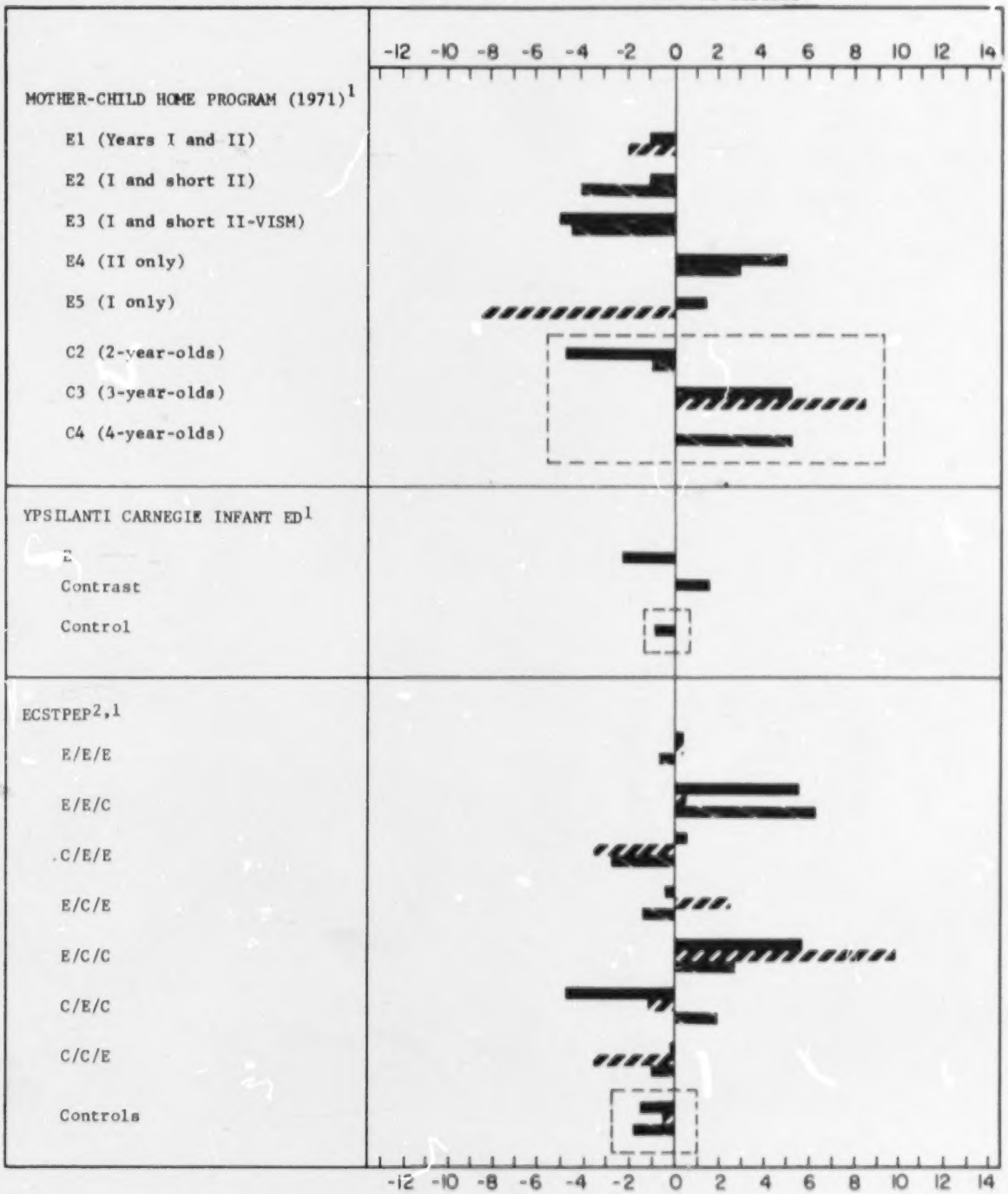


O = end of program

X = follow-up testing

FIGURE 3

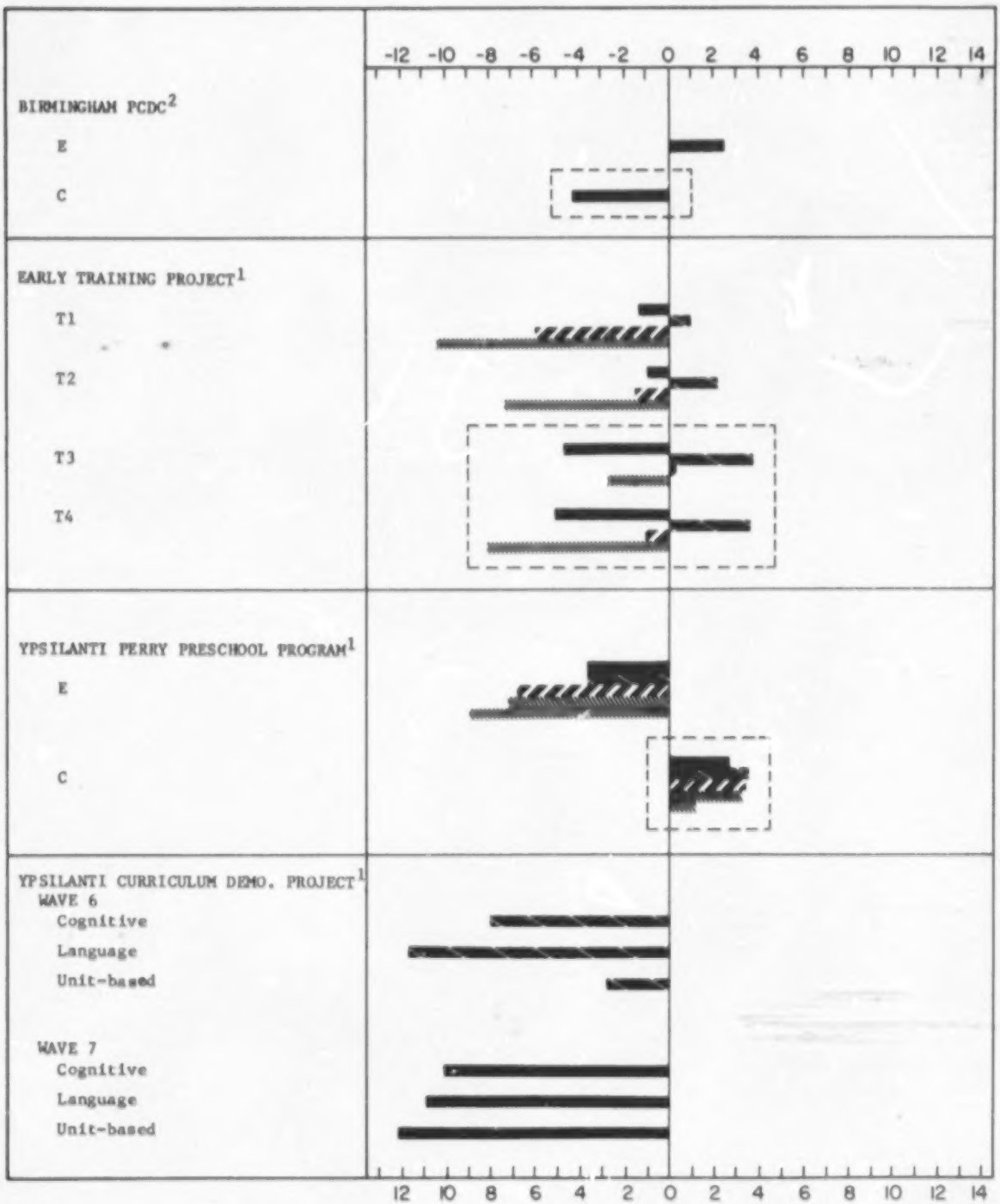
CHANGES IN INTELLIGENCE TEST SCORES IN FOLLOW-UP TESTING

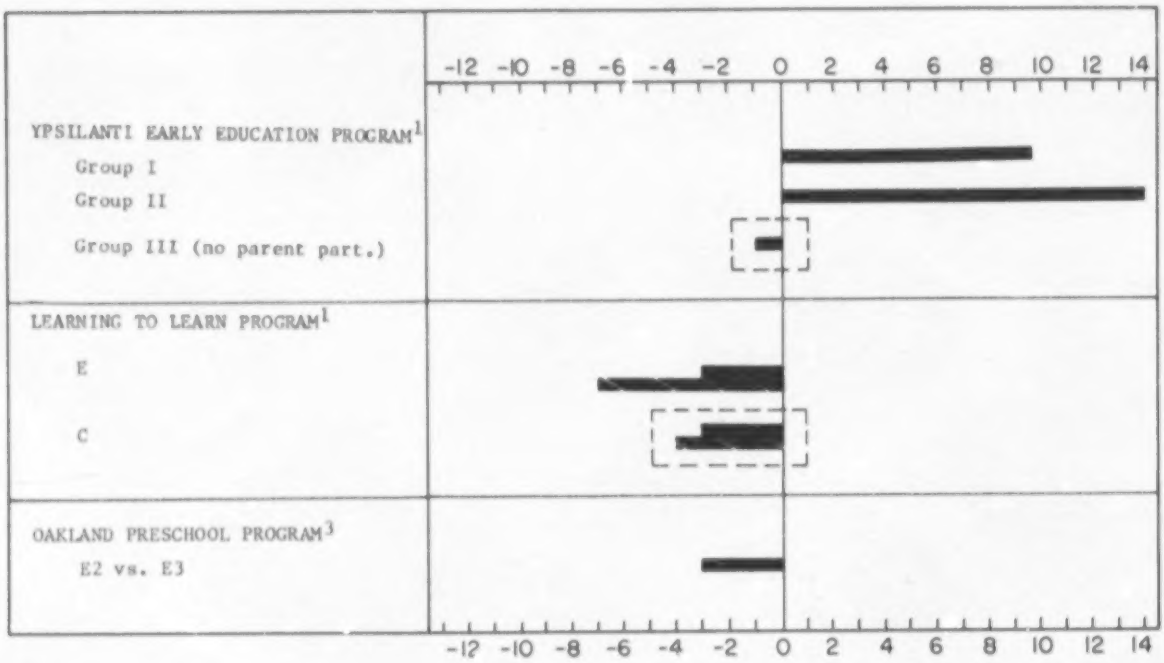


1 = Stanford-Binet
2 = Bayley MDI
3 = Pictorial Test of Intelligence

= follow-up testing up to one year after program end
= follow-up testing up to two years after program end
= follow-up testing up to three years after program end
= follow-up testing up to four or five years after program end

= control groups


-12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14
BIRMINGHAM PCDC[2]
E
C
EARLY TRAINING PROJECT[1]
T1
T2
T3
T4
YPSILANTI PERRY PRESCHOOL PROGRAM[1]
E
C
YPSILANTI CURRICULUM DEMO. PROJECT[1]
WAVE 6
Cognitive
Language
Unit-based
WAVE 7
Cognitive
Language
Unit-based
12 10 8 6 4 2 0 2 4 6 8 10 12 14


-12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14
YPSILANTI EARLY EDUCATION PROGRAM[1]
Group I
Group II
Group III (no parent part.)
LEARNING TO LEARN PROGRAM[1]
E
C
OAKLAND PRESCHOOL PROGRAM[3]
E2 vs. E3
-12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14

See Appendix for discussion of possible regression effects.

first grade. Children who received the full two years of home visits have maintained nearly 100% of the gains shown in immediate testing. The difference in average IQ between the program and control children remained significant and similar in magnitude to the difference at the end of the intervention. (3) Two years after their program participation ended, children in the Learning to Learn Program (Sprigle) were in third grade. During the two years after the program, the difference in average IQ for program and control children remained large and significant. Both groups, however, declined slightly but consistently in IQ through second and third grades.

Three programs obtained follow-up data on children one year after the program intervention ended. (1) In the Ypsilanti-Carnegie Infant Education Project (Weikart), follow-up after one year showed no significant differences between program and control children. Program children had a higher average score, however, and both groups scored above the national average. (2) One year after the Ypsilanti Early Education Program (Radin) intervention had ended, the children who received the preschool classes and whose parents participated in classes and home visits continued to gain (on the Peabody Picture Vocabulary Test--PPVT) and were superior to children who had received preschool classes only. (This same trend was not confirmed on the Wechsler Intelligence Scale for Children.) (3) The Birmingham Parent Child Development Center obtained test scores from four-year-old children who had been in the program for one year only and for whom one year had elapsed since the end of the intervention. Program children had a significantly higher average IQ score, and the between-group difference in IQ appeared to be increasing with time: that is, program children were increasing in average IQ score, while control children were decreasing.

The Oakland Preschool Program obtained data on children's IQ scores either immediately after the intervention ended in June or in the fall, three months later. The groups of children tested at the two times differed in level of gain. The children tested in the fall did not have the same advantage over the control children, which suggested that the effect of the program began to diminish immediately after the intervention ended.

It was earlier concluded that the parent training programs as a group gave children an immediate advantage over control children in average IQ score. In the programs that carried out follow-up testing, it was shown that the advantage was sustained into grade school. In about one-half of the programs that assessed long-term performance, however, the intervention did not prevent the children from gradually decreasing in IQ score from a high score at the immediate end of the intervention toward their pre-test mean. Both program and control children declined in score, but program children usually continued to score consistently higher. This decline did not always occur--the Mother-Child Home Program (MCHP) and the ECSTPEP were exceptions. These programs have followed children for two and three years, respectively; the decline in IQ often is found four or more years after intervention ends, at the time children are in the third and fourth grade (for example, in the Early Training Project and the Ypsilanti Perry Preschool Program). This obviously indicates the importance of follow-up testing beyond the children's first contact with grade school.

Long-term evaluation of the MCHP and other programs is planned to go beyond first grade. The data from these evaluations will be valuable in understanding the effectiveness of parent training programs in producing lasting effects on children.

The follow-up data suggest that preschool programs which train parents as teachers of their own children may be more successful in producing lasting effects on children than preschool intervention programs without parent participation. There are two studies that offer further data supporting a hypothesis that parent training is related to long-term effectiveness.

In one study (Schaefer, 1969, 1972), it was found that when low-income children were intensively tutored by trained tutors instead of by mothers, there were immediate but not long-term effects on the children's IQ scores. The tutor/child interaction in this program was quite similar to the mother/child interaction encouraged in parent-participation programs like the MCHP. That is, the children's intellectual development was stimulated through verbal interaction based around toys and games. The experience of the children in the tutoring project and in programs like the MCHP is similar, but the experience of their parents is quite dissimilar. Parents were not involved at all in the tutoring program since the trained tutors did all the interacting. The fact that the tutoring did not produce any lasting effect on the children, while the mother/child interaction of the MCHP did, has been interpreted (Bronfenbrenner, 1974) as showing that parent participation is a crucial factor in the maintenance of long-term effects.

The second study that supports the hypothesis is the SKIP study (see p. 111). As a part of the data analysis in SKIP, children were grouped according to whether or not their previous preschool experience had included parent involvement. The children whose parents had participated in their preschool program made the largest gains in the subsequent SKIP program. Parent involvement seemed to be a factor in the children's continuing academic superiority.

Results from achievement test performance: Three programs assessed the achievement of program children by looking at classroom grades or performance on standardized achievement tests. These were the Ypsilanti Perry Preschool Program, the Learning to Learn Program, and the Early Training Project. All three showed positive results.

The Ypsilanti Perry Preschool Program reported data on achievement test scores for children through the fourth grade. On the California Achievement Test (CAT), program children scored higher than control children at each year's post-testing, although the difference was significant only through third grade. In third grade, none of the control children scored above the 50th percentile on the test, while half the program children did. Also, 72% of the program children were at their expected grade level by third grade, compared with only 60% of control children. Substantially more control children had been assigned to special remedial classes. At the same time, the scores on standardized IQ tests in third grade did not show a significant difference favoring program children. In the Early Training Project, program children significantly outscored control children on a standardized achievement test through second grade. By fourth grade, the difference remained but it was no longer significant.

School grades of children from the Learning to Learn program were compared with the grades of control children. At the end of third grade, 92% of the program children were receiving passing grades while only 60% of control children were. Twenty-six percent of program children were at or above their expected grade level, compared with 8% for the control group. Only 3% of the program children had fallen more than a year and one-half below grade level, but 32% of control children had. Program children were consistently superior to control children in grades received in reading, arithmetic, and language ability. On achievement tests in reading, arithmetic, and language, more than half the program children scored at or above their expected level; less than 20% of control children did comparably.

Not many of the 29 programs looked for long-term differences in academic achievement, but those that did, found them. The differences that consistently showed up were strong evidence for the value of the programs in helping low-income children keep up in school and out of special classes. There is an advantage in follow-up evidence on school performance, since school achievement was a crucial initial point of concern for these programs. The fact that all the programs reported positive results for at least two years of follow-up suggests that programs with this kind of parent involvement are effective. The data from the Ypsilanti Perry Preschool Program suggest that failure to find significant differences in follow-up IQ testing does not preclude the possibility that program children have a meaningful advantage over control children on other measures of school performance.

Results from measures of school behavior: Three programs looked at teachers' assessment of children's classroom behavior. All three programs reported that children who had received preschool intervention had an advantage over the non-program children. For the children from the Ypsilanti Perry Preschool Program, socioemotional ratings by grade school teachers significantly favored program children in first and second grade. By third grade, the program children were rated higher but not significantly so. Children from the Mother-Child Home Program at each age of follow-up testing were given above-average ratings by teachers on their school psychosocial behavior. Ratings for program children were consistently higher than those for control children. In the Learning to Learn program, teacher ratings distinctly favored the program children: 70% of program children compared with 53% of control children were rated as having an appropriate self-concept. On ratings of achievement motivation, all program children were scored above the minimum level considered necessary for school success while only 8% of the control children received at least the minimum rating.

Conclusions

The question examined was whether this set of programs, as a group, is successful in giving children immediate and long-term advantages that are relevant to school performance. In terms of standardized IQ tests, the answer would be yes, although the conclusion must be considered tentative. The programs produced immediate advantages for children--either significant gains over control children or "protection" against declining IQ scores found for control children. In the available follow-up results there was

evidence that advantages for program children were maintained for one or two years after intervention ended. The results from follow-up testing of longer intervals were less conclusive, showing declining IQ scores for both program and control children, although program children remained superior. The data from IQ tests are less direct than data from measures of school performance for assessing the impact of these programs on children's success in school. The results from achievement tests, grades, and grade placement were highly consistent in significantly favoring children who had received intervention. Although it was not of central concern, it should be mentioned that the data from teacher ratings of children's social adjustment also consistently distinguished between program and control children.

Differential Effects of the Programs on Children's IQ Scores

In the Introduction, four program features were described: program format, content of the parent component, teacher/parent ratio, and structure and specificity of the parent component. Each feature was divided into two or more levels. In Table 2, every program is listed and assigned to a level on each of these four program features which were expected to predict the magnitude of a program's effectiveness. These four features will be considered individually in the following discussion. For each feature, the programs that share a level are grouped into a set. On each feature, the performance of these different sets of programs will be compared, to see whether programs at one level of the factor are more effective than programs at another level.

The sets of programs will be compared on two criteria of effectiveness: (a) immediate changes and (b) long-term changes in children's IQ scores. IQ scores were selected for this comparison because cross-program comparison requires comparable measures across programs, and IQ scores are available on almost all of the programs. Selecting this criterion is not meant to suggest that IQ changes are the most significant outcomes of the program; they are simply the only measure on which a reasonable number of cross-program comparisons can be made. Only children's scores are used because measures of parents' verbal and nonverbal behaviors are not available for most of the programs and because those that did evaluate parent behavior used different measures with varying degrees of standardization.

The many differences that exist among programs make it obvious that cross-program comparisons can yield only tentative conclusions. Programs differ from one another on characteristics other than those of central concern, and these extraneous factors may themselves be involved in the impact of the programs. On the other hand, it may be assumed that the programs are treatments in which such factors as staff enthusiasm and commitment, level of program planning, and the interest stimulated by a new program are shared. Differences that emerge are thus more likely to be related to the design of the program.

Table 2

Predictors of Program Effectiveness

Program Title	Program Format	Content of Parent Component	Teacher/ Parent Ratio	Structure Specificity of Parent Component
Mother-Child Home Program (Levenstein)	Home visits	Verbal[1]	1 - 1	High/High
Houston Parent-Child Development Center (Lelar)	Year 1: Home visits	Cognitive	1 - 1	High/Med
	Year 2: Parent classes, pre-school	Cognitive	1-group	Med/Med
First Generation Mother Study (Barbrack)	Home visits	Cognitive	1 - 1	Med/Med
Infant Intervention Project (Forrester)	Home visits	Cognitive	1 - 1	Med/Med
Second Generation Mother Study (Barbrack)	Home visits	Cognitive	1 - 1	Med/Med
Study of Intrafamily Effects (Gilmer & Gray)	Home visits	Cognitive	1 - 1	Med/Med
Ypsilanti-Carnegie Infant Educarion Project (Lambie, Weikart, Bond)	Home visits	Cognitive	1 - 1	Med/Med
Early Child Stimulation Through Parent Education Program (Gordon)	Home visits	Sensory-motor	1 - 1	High/Med
Three Home Visiting Strategies (Barbrack)	Home visits	Cognitive Sens-motor	1 - 1	Med/Med
Birmingham Parent-Child Development Center (Lasater, Malone)	Preschool classes for both mother & child together	Cognitive	1-group (1-1)[2]	Med/Med
New Orleans Parent-Child Development Center (Andrews, Bache)	Preschool classes for both mother & child together or home visits	Cognitive Child Devel.	1-group (1-1)	Med/Med
Parent-Child Course (Rayder)	Parent classes	Cognitive	1-group	High/High
Mothers Training Program (Karnes)	Parent classes	Cognitive (Verbal)	1-group (1-1)	High/Med
Home-Oriented Preschool Education (Appalachian Educational Laboratory)	Home visits TV programs preschool	Cognitive	1 - 1	Med/Med

Table 2 continued

Program Title	Program Format	Content of Parent Component	Teacher/ Parent Ratio	Structure Specificity of Parent Component
Early Training Project (Gray & Klaus)	Home visits preschool	Cognitive	1 - 1	Med/Med
Special Kindergarten Intervention Program (Radin)	Home visits preschool	Cognitive	1 - 1	Med/Med
Ypsilanti Perry Preschool Program (Weikart)	Home visits preschool	Cognitive (Verbal)	1 - 1	Med/Med
Ypsilanti Curriculum Demonstration Project	Home visits preschool	Cognitive	1 - 1	Med/Med
Spanish Dame Bilingual Education Program (Micotti)	Home visits preschool with parent present	Cognitive Verbal	1 - 1	Med/Med
Ypsilanti Early Education Program (Kingston & Radin)	Home visits parent classes preschool	Cognitive	1 - 1 1-group	Med/Med
Hawaii Program I (Adkins)	Parent classes parent aides preschool	Cognitive	1-group (1-1)	Med/Med
Hawaii Program II (Adkins)	Parent classes parent aides preschool	Cognitive Child Devel.	1-group (1-1)	Med/Med
Hawaii Program III (Adkins)	Parent classes parent aides preschool	Cognitive	1-group (1-1)	Med/Med
Learning to Learn Program (Sprigle)	Parent classes conferences preschool	Cognitive Child Devel.	1-group (1-1)	Med/Med
Structured Language Program (Mann)	Parent classes preschool	Verbal	1-group (1-)	Med/High
Teaching Parents Teaching (Champagne & Goldman)	Parent classes preschool	Verbal	1-group (1-1)	Med/High
Parents are Teachers Too Program (Boger)	Parent classes preschool	1st: Verbal 2nd: Sensory-motor	1-group	High/High
Project Early Push (Downey)	Parent classes conf., preschool	Cognitive	1-group (1-1)	Med/Med
Oakland Preschool Program (Waters)	Parent visits preschool	Child Devel.	(1-1)	Low/Low

[1]Ratings do not imply exclusive emphasis but rather dominant emphasis in a program.

[2]"(1-1)" refers to infrequent one-to-one parent/teacher meetings that are not the dominant mode in the program.

Effects of Program Format

Is program format (i.e., the amount of emphasis on the parent component) related to program effectiveness? Emphasis on the parent component is indicated by how program efforts are allocated--totally to the parent (home visits or parent classes) or divided between parents and children (preschool classes for the children and home visits or parent classes for parents). The programs are divided into two groups. Thirteen (called Set I) are judged to have "high" emphasis on the parent component; 16 (Set II) are judged to have "medium" emphasis.

The 13 programs in Set I include nine which relied on home visits for their experimental treatment. (This includes Year I in the Houston Parent Child Development Center.) Two of the Set I programs offered classes to parents only, and two offered classes to parents and children together. The 16 programs in Set II include seven programs which combined home visits to parent/child pairs with preschool classes for the children and nine programs which offered separated classes to parents and to children. (The Ypsilanti Early Education Program included various treatments, some of which fell into Set I and some into Set II. The program was counted in Set II. The Houston PCDC includes one year of home visits (Set I) and one year of Center classes (Set II). Since data were available from the home visits only, the PCDC was counted only in Set I.)

Immediate outcomes: The magnitude of IQ gain made by children at the end of each program is shown in Figure 1. The first comparison is between the gains made by children in programs with either home visits or parent classes only and gains by children in programs with at least two components --a preschool program for the children and home visits or classes for the parents. Figure 1 suggests that there is no consistent relationship between the magnitude of immediate IQ gain and the program format.

(1) High emphasis programs: The 10 programs with home visits-only produced immediate gains ranging from 0 to 20 IQ points. Five of them produced gains of 9 or more points; the other five, all sponsored by DARCEE, produced small gains of under 5 IQ points. The one program with parent classes-only that used a standardized IQ test was the Mothers Training Program (Karnes). This program produced a gain of around 7 IQ points. The two PCDC's with a single class for mothers and children together have reported only partial data to date. In the Birmingham PCDC, program children scored in the normal IQ range up until age two, while control children fell behind. In the New Orleans PCDC, program and control children declined in IQ score during their first year in the program.

(2) Medium emphasis programs: The programs that combined home visits with preschool classes produced average IQ gains that ranged from 9 to 15 points. Programs combining parent classes with preschool classes produced gains that were positive but usually under 10 points. The exception was the Learning to Learn Program which produced gains of around 15 points.

Neither the high emphasis nor the medium emphasis programs as a group were clearly favored in terms of immediate effectiveness. There did, however, appear to be a program feature cutting across our two groups which was

related to greater effectiveness. Home visits, either alone or in combination with preschool classes, was apparently a more effective format in producing above-average gains for program children.

Long-term outcomes: Nine programs have reported follow-up data on children's IQ scores (see Figure 3). Four programs fall in Set I (high emphasis). Three of these programs used home visits only--the MCHP, the Ypsilanti-Carnegie Infant Education Project, and the ECSTPEP. One program, the Birmingham PCDC, offered a single class to mothers and children together. Five programs fall in Set II (medium emphasis). Three of these combined home visits and preschool classes--The Ypsilanti Perry Preschool Program, the Early Training Project, and the Ypsilanti Early Education Program. One program had separate classes for parents and children--the Learning to Learn Program. The Oakland Preschool Program offered parent/teacher conferences and class visits to parents and preschool classes to the children.

(1) High emphasis programs: All but one of the four programs in Set I reported positive follow-up results. The children in the MCHP maintained their level of immediate gains two years after intervention, at the end of first grade. Children in ECSTPEP also maintained their gains through first grade. The Birmingham PCDC reported follow-up data on a small group of children who had participated in only a part of the full program. Two years after their participation, the program children were continuing to gain in IQ while control children were declining. Only in the Ypsilanti Infant Education Project was no significant difference found between program and control children one year after their intervention ended. Program children did, however, score above control children, and children in both groups scored above the national average.

(2) Medium emphasis programs: Two of the programs combining home visits with preschool classes reported significant differences between program and control children in follow-up testing. Both the Ypsilanti Perry Preschool Program and the Early Training Project reported significant differences in third grade IQ scores, although by the end of third grade the difference for the Perry Preschool children was no longer significant. In both programs, the average IQ score decreased for program and control children after the intervention period. In the Ypsilanti Early Education Program, three treatment groups from one year of the intervention were followed into grade school. At the end of kindergarten, two of the three groups had continued to make significant gains on the PPVT. These were the groups that had had preschool classes and maternal involvement, through home visits and parent classes. These two groups also outscored the third group that had had preschool classes only, with maternal involvement. By the end of third grade, however, there were no longer significant differences between the groups. In the Learning to Learn Program, two years after intervention ended, the children were in third grade; program children were clearly superior in IQ score, although the scores of both program and control groups declined after the intervention period.

The follow-up data on stability of gains suggest that the program format with greater emphasis on parents (Set I) is more effective. The follow-up testing for Set I programs, however, is not yet as comprehensive as that

for the Set II programs. If advantages for program children are likely to fade in later grade school years, as occurred in the Set II programs, a comparable decline in the results from Set I programs could change this conclusion.

Effects of Content of the Parent Components

Is the content of the program component for parents related to program effectiveness? The parent training components in different programs emphasized different aspects of parents' behavior. Five programs emphasized verbal stimulation and language development in their parent component: 3 emphasized sensory-motor stimulation and development; 22 emphasized parents' role in general cognitive stimulation; and 4 emphasized parents' knowledge of child development principles, either alone or combined with a cognitive emphasis.

(1) Verbal content: The five programs emphasizing verbal stimulation are: Structured Language Program (Mann), Teaching Parents Teaching Program (Champagne & Goldman), Spanish Dame Bilingual School, MCHP, Parents Are Teachers Too Program (first field test; Boger). The first three did not use standardized tests. Each of these three, however, produced significant gains in program children on measures of specific curriculum content or on measures of language development. The MCHP and Parents Are Teachers Too Program (PATTP) used standardized IQ measures. In immediate testing, children in the MCHP made large and significant gains of almost 20 IQ points. Children in the PATTP made smaller but also significant gains, around 5 or 6 IQ points. Only the MCHP of these five programs reported follow-up data. The data were positive: nearly 100% of the large immediate gains were maintained for two years after intervention.

(2) Sensory-motor content: Three programs emphasized sensory-motor stimulation and development: ECSTPEP, PATTP (second field test), and the study of Three Home Visiting Strategies (Barbrack). The ECSTPEP produced moderate immediate IQ gains of around 10 points. In follow-up testing, this gain was stable, at least through first grade, two years after intervention ended. The PATTP (second field test) did not produce an immediate significant advantage for program children when the parent training was concentrated on sensory-motor exercises for parents and children. In Barbrack's study of Three Home Visiting Strategies, one of the strategies involved training mothers to carry out sensory-motor exercises with their children. The children of these mothers made only slight gains in IQ. (Similarly small gains were made by the children whose mothers were trained in cognitive interactions.)

(3) Cognitive content: Most of the programs emphasized the parents' role in stimulating the cognitive development of their child. These programs produced immediate IQ gains ranging from 0 to 15 IQ points. Six programs reported results from follow-up testing of children, and five of the six reported significant differences between program and control children for varying lengths of time after the intervention ended. Three programs reported positive follow-up data for two or fewer years after intervention: Birmingham PCDC, Learning to Learn, and Special Kindergarten Intervention Program (SKIP; Kingston & Radin). Two programs reported data for four or

or five years after intervention: Ypsilanti Perry Preschool Program and Early Training Project. The differences between program and control children diminished after these programs ended, although the differences remained significant for both programs through third grade.

No one type of content for a parent component--language, sensory-motor, cognitive, or child development principles--had a clear advantage in predicting magnitude of IQ gain for children in a program, either immediate or long-term. This conclusion was not unexpected, given the conclusions from other comparative studies of different contents for both children's and parents programs. For instance, in the Ypsilanti Curriculum Demonstration Project (see pp.125-127), it was found that the content of a preschool curriculum for children was not a crucial factor in IQ gain, given equivalent planning and structure in the different curricula.

In three other programs, systematic comparisons were made between different contents for parent components. First, in the evaluation of the ECSTPEP, two curricula for home visits were compared. One consisted of tasks based on Piagetian theory and the other consisted of tasks developed by the paraprofessional Parent Educators. No significant differences were found between the gains made by children receiving the two curricula. Second, in Barbrack's study of Three Home Visiting Strategies, parent training based on sensory-motor tasks was compared with parent training based on cognitively stimulating tasks. There was no significant difference in the immediate IQ gains made by the children of the two groups of mothers. Barbrack concluded that curricula taken equally seriously by mothers would have similar effects on the children. On the other hand, mothers in the cognitively based group made greater positive changes in their teaching behavior than the mothers in the sensory-motor group. Third, in Hawaii Program II, two curricula for parents were compared--one emphasizing child development principles and one emphasizing the parent's role in the child's cognitive development. It was found that parent participation in the cognitive development program benefitted the children (i.e., increased their gains), while parent participation in the child development program did little to facilitate the children's progress.

On the one hand, it can be cautiously concluded that no one content for parent programs was shown to be more consistent than the others in producing higher or more stable gains for program children. On the other hand, this statement by itself appears to be incomplete. It also appears that certain factors in parent programs other than content do make a difference--for instance, the degree of structure and planning in the curriculum or the validity of the curriculum in the parent's eyes. Further, it seems that the particular content of a curriculum may be less important in determining program effectiveness than how the content functions to involve parents. In the Hawaii program, the cognitive curriculum emphasized parents' active responsibility in their child's development, which may have made a difference in the extent or quality of the parents' participation. Finally, looking at changes in parent behavior might lead to different conclusions about program content. Barbrack's study indicated that different program content produced different degrees of change in parents' teaching behaviors, and this could be important in long-term program effectiveness.

Effects of Teacher/Parent Ratio

Is program effectiveness related to the teacher/parent ratio, that is, to whether parents are put in one-to-one or a group relationship with the program teacher? One way to make the comparison between one-to-group and one-to-one teacher/parent relationships is to look at programs with parent group classes versus programs with home visits only. There were four of the first type and ten of the second type.

Two programs with parent classes only were the Mothers Training Program and the Parent-Child Course; two with classes for parents and their children were the New Orleans and the Birmingham PCDC's. None of these four reported high short-term IQ gains, but the data were not negative. The Parent-Child Course used only mastery tests in its evaluation; children's scores on these tests showed that the Course was successful in training parents to teach specific concepts to their children. The two Parent-Child Development Centers tested very young children, for whom IQ scores are less dependable, and their testing was only partially completed by the time of this report. The available data did not show large gains for program children. In the New Orleans PCDC, the scores on the Bayley Scales for both the program and control children declined during the first year of program participation (the children were all under two years of age). In the Birmingham PCDC, the program children consistently scored at the normal range on the Bayley Scales up to two years of age, while the control children fell below the normal range. The Mothers Training Program produced moderate IQ gains, around 10 points. Only one of these four programs reported long-term results. The Birmingham PCDC followed a small group of children for two years after they had participated for a short (partial) time in the intervention program. These children were still gaining in IQ at ages three and four years, while children who had had no intervention were declining.

Of the 10 home visit programs, very high gains and very low gains were reported--19 IQ points in the MCHP and 1 to 4 points in Barbrack's home visit programs. About one-half of the programs produced above-average gains and one-half below average gains. The home visit programs had a good record on stability of gain (see pp. 208-209).

The home visit programs more consistently produced higher immediate gains and more often showed long-term maintenance of gains. The cross-program comparisons, however, suffer from incomplete data (e.g., from the Parent-Child Development Centers) and inadequate data (too few follow-up studies). The home visit programs may be superior by default. The state of the data precludes a conclusion about the relative effectiveness of home visits versus parent classes. Both kinds of program organization offer advantages. The home visits offer the possibility of a more intense parent/teacher relationship and greater potential for personal rapport between the two; the group classes offer the possibility of support and motivation among group members. One program, the New Orleans PCDC, has organized its treatments to permit a direct comparison of home visits versus Center classes in teaching the same curriculum. These data, when available, will help answer the question about parent/teacher relationships.

A second way to compare one-to-one and one-to-group teacher/parent relationships is to look at programs combining preschool classes with home visits versus programs which combine preschool classes with parent classes. There are 7 of the former and 11 of the latter type. Average level of immediate IQ gain was slightly but consistently higher for the preschool plus home visits programs. Long-term results could not be used, since only one program preschool plus parent classes reported data (the Learning to Learn Program). The apparent advantage of the preschool plus home visit program in this comparison supports the advantage of the home visit programs in the earlier comparison of home visits versus parent classes only. Again, the state of the data makes it unwise to state a strong conclusion at this point.

Effects of Structure and Specificity in the Parent Components

Is the degree of structure in the parent component or the degree of specificity in the curriculum for parents systematically related to program effectiveness?

A program's level of structure depended on whether the parent training was organized in a sequence of predetermined concrete tasks. Seven programs were rated as "high" on structure: the MCHP, the Mothers Training Program, the Parent-Child Course, the Ypsilanti Early Education Program, the Parents Are Teachers Too Program, the Houston PCDC, and the ECSTPEP. One program was judged as low. The rest were judged to have medium structure.

On producing immediate IQ gains for the children, none of the three levels of structure was clearly superior. However all of the programs with high structure produced at least moderate short-term gains. The data on stability of gains in follow-up testing also appeared to favor the programs with high structure, since the MCHP and the ECSTPEP had the best records for maintenance of gains. The issue must again be raised, however, concerning the length of follow-up. Both of these programs followed children through first grade only, as of this report.

The data suggest that level of structure in the parent component is related to program effectiveness, particularly long-term stability of gains for program children. Programs with high structure offer parents concrete activities. These may serve parents as clear guides for working with their children. Concrete tasks may motivate parents to practice new behaviors with their child by offering unambiguous instructions and activities or by removing the responsibility for parents to design and initiate their own tasks. There are a number of ways in which concrete tasks could be beneficial in increasing the level of immediate gains, but at this point we can only speculate. In terms of long-term benefits, parents who develop a repertoire of specific activities may be more likely to carry out activities on their own in the future, since the actual tasks would be part of their competence--understandable and practiced. Continuing parent/child interaction around these tasks could be one reason for the maintenance of gains by program children in the highly structured programs. On the other hand, less structure in a parent component can mean that the tasks are individualized for each parent, as in the Ypsilanti Infant Education Project. There may be special advantages for less structured parent components if less structure implies individual perception of tasks.

The level of specificity in a parent program was defined as the degree of definition or detail in the training--whether parents were trained in specific teaching techniques or interaction was more open-ended, presenting general styles of interaction, for instance. Six programs were judged high in specificity: the MCHP, the Ypsilanti Early Education Program, the Parents Are Teachers Too Program, the Teaching Parents Teaching Program, the Parent-Child Course, and the Structured Language Program. The first three used standardized intelligence tests in their evaluations. The immediate IQ gains in the MCHP were large (16-20 IQ points); the gains were moderate (9-12 IQ points) in the Ypsilanti Early Education Program, and small for the PATTP. The MCHP carried out follow-up testing, and thus far the gains have been shown to be stable for two years after intervention. The data from the nonstandard measures used by the other three programs also showed significant results. The field tests of Teaching Parents Teaching were suggessful in increasing parents' use of specific techniques of positive reinforcement. The Structured Language Program produced significant immediate changes in both mothers' and children's language, as well as changes in mothers' verbal interaction techniques. The Parent-Child Course was consistently successful in improving the children's performance on mastery tests of curriculum concepts.

All but one of the remaining programs were judged to have instruction of medium specificity. The program with low specificity was the Oakland Preschool Program. None of the three levels of specificity appeared to be systematically related to greater program effectivensss, either on immediate or long-term measures. The program with low specificity reported a fading-out of immediate gains for program children, while programs in both the high and medium specificity groups included programs that reported stable IQ gains. Low specificity may be negatively related to long-term program effectiveness, but there was not a clear difference between high and medium specificity in level or stability of gains produced. On the PATTP (first field test), one of the variables in the treatment design was specificity of the curriculum for the parents. There were no significant differences in either children's or parents' outcomes related to degree of specificity of the parent training.

Within-Program Evaluation of the Effects of the Parent Components

The designs of a small number of programs permitted within-program comparisons of treatments with and without parent training components. These programs may be used to indicate the effect of a parent training component in the overall program effectiveness.

Two programs--SKIP and HOPE (Home-Oriented Preschool Education)--designed different treatments that contrast the effects of intervention with and without parent participation. HOPE program sponsors compared the effects of three program components: televised lessons, home visits to children and their parents, and small group classes in a mobile classroom. They found that the home visit component was the most important factor in predicting the children's cognitive and language development. This component was the only one in which parents participated. The evaluation of the SKIP program separated the effects of the children's supplementary classroom component, their normal kindergarten experience, and a parent

involvement component. The involvement was one-to-one advising of mothers by a home visitor, concentrating on improving the mothers' teaching. It was concluded that the superiority of program children at the immediate end of the program was related to the parent involvement.

Two studies that investigated the way in which the level of parent involvement (i.e., a parent's attendance) was related to the level of children's immediate IQ gains also showed the importance of parent participation. The conclusion common to these programs was that the parent involvement was related to higher gain. In both Project Early Push and the programs from the Hawaii Center for Research in Early Childhood Education, children of parents who participated more often in the parent activities outscored children whose parents were less involved or uninvolved.

Conclusions

In the previous discussion it was concluded that this group of preschool programs concerned with training parents as teachers is consistently successful in producing immediate and stable IQ gains. Within program comparisons of treatments suggested that such parent involvement is related to higher gains by children in a program. Data from evaluations with long-term testing indicated that the stability of gains is also related to the presence or absence of a parent component that focused on parents as teachers. Specific features of parent components were examined to see if they could be used to predict the magnitude of a program's immediate or long-term effects on children. The conclusions that follow are the result of the examination of these specific features in cross-program comparisons. The conclusions help to some extent in clarifying the relationships between features of a parent component and program effectiveness.

1. For program format, the data from immediate testing favored home visits, either alone or in combination with preschool classes for the children. The long-term data indicated greater effectiveness for programs with more emphasis on parents--those using only home visits or parent classes. Assuming that the programs which were identified as having greater emphasis on parents did so in practice, then it appears that the more a program is focused on the parents, the more likely it is to produce significant and stable gains in the children. This trend in the cross-program comparisons is consistent with the conclusion from the within-program comparisons: namely, that the inclusions of a parent component in a program is related to the effectiveness of the total program in producing gains.

2. For program content, no one content for the parent component was favored by the outcome criteria. However, it was suggested that a program content requiring the active involvement of parents is more likely to produce higher gains for program children (and greater changes in parent behavior). The beneficial effect of active parent involvement further supports the conclusion that parent participation is an important factor in the effectiveness of preschool intervention programs.

3. For teacher/parent ratio, the data suggested that greater effects in immediate and follow-up testing are produced by a one-to-one parent/teacher relationship. The potentially more intense and personal one-to-one relationship is more predictive of program success than group work with parents, although the results from within-program comparisons of a single curriculum taught in home visits and parent classes will be important evidence to support (or contradict) the trend emerging in cross-program comparison.

4. For program structure, high structure most often related to greater program effectiveness. The use of a series of predetermined, concrete tasks in a parent program is related to higher program effectiveness.

5. For program specificity, no pattern emerged relating a level of program specificity to program effectiveness.

The trends from the cross-program comparisons seem consistent. All of the features of the parent components which were found to be related to overall program effectiveness underlined the importance of the active involvement of parents in preschool programs.

Overall Effects of the Programs on Parents

Most of the programs were designed to change parent behavior, attitudes, or knowledge in some way, and half of the 29 programs included quantitative assessment of parent change as part of their evaluation. Evaluation of the success of the programs as a group in achieving changes in parents, however, encounters a major problem affecting the generalizations that can be made. Standardized instruments for measuring the kinds of behavior of concern to these programs often did not exist, and thus comparisons with other studies of parent behavior were often not possible. The data from specially designed or infrequently used instruments can be examined, however, to see if parents in a program appear to have changed in ways not shared by comparison or control group parents.

Although various instruments were used, there are major areas of parent behavior that were commonly examined in the evaluations: parent attitudes, parent/child interaction, and home environments. Program sponsors expected to find changes in these areas that reflected the effect of the intervention in making parents better teachers of their own children.

Only immediate outcomes are discussed for parent measures. Thus far, follow-up testing on parents has not been carried out. Data on the persistence of the relationship between behavior or attitudes and children's performance is essential in assessing the importance of intervention designed to change parent behavior. Follow-up data on parent behavior could indicate whether long-term changes in children are due to "permanent" changes in the quality of their home environments rather than to "permanent" changes in the children's cognitive functioning by the immediate end of a program.

Immediate Outcomes in Parent Attitudes

The two aspects of parents' attitudes for which significant changes were most often found were (1) sense of personal efficacy or control over one's own life, and (2) attitude toward the child and his development.

Program sponsors attempted to develop parents' sense of personal control. It was expected that parents who had a strong sense of personal efficacy would be more likely to feel responsible for their child's development and to participate actively as teachers. In three programs, ECSTPEP, Hawaii Program II, and New Orleans PCDC, mothers who participated in the training significantly increased their sense of personal efficacy, compared to their pretest level or to control mothers. In the Hawaii Program, the parents who participated more actively in the training had a higher level of sense of personal power by the end of the program than parents who had participated, but less actively. This suggests that the participation was a crucial factor in causing the attitude change. The change in parents' sense of internal control appeared in data from a variety of instruments.

Program sponsors also expected parents to change in their attitudes toward their own child; in particular, parents were expected to have more realistic and flexible expectations about their child's development. Four programs found evidence that mothers became more flexible during the intervention. The Ypsilanti Early Education Project and the Birmingham PCDC used the Parent Attitude Research Instrument (PARI), which is composed of a number of subscales.[1,2] Mothers in the Ypsilanti program decreased on the Authoritarianism subscale, and the amount of change was related to the intensity of the mother's participation. Mothers in the Birmingham program made greater positive changes than control mothers on 10 of the PARI subscales. The Birmingham PCDC and the Houston PCDC found evidence of changing developmental expectations of their children on different measures. The Ypsilanti Carnegie Infant Education Project did not find that the program altered the parents' developmental expectation of their child.

Five of the six programs that assessed change in parent attitudes found positive evidence, although the results were not always statistically significant. There was a consistency across programs and instruments in the attitudes most often found to have changed--sense of personal power, authoritarianism toward one's own child, and developmental expectations. These attitudes could be relevant to how parents function as teachers and to whether they take on responsibility as teachers.

Changes in these attitudes could be related to children's gains in performance, if the changes signal shifts in parents' behavior relevant to

---

[1] The number of subscales varies between 20 and 36 depending on the form of the PARI used, but is always greater than 20

[2] For a review which raises questions about the usefulness of the PARI, see W. C. Becker & R. S. Krug, Child Development, 1965, 36, pp. 329-365.

their child's development. The relationship of parent attitude changes to gains in children's performance was not often examined in these studies. When examined, relationships were not found between parent attitudes and children's performance. For instance, Gordon and Jester (1972; discussed in this report) found no significant correlation between any of the parent attitudes they examined (including sense of personal control) and children's IQ test scores. The fact that attitudes are not clearly related to performance does not mean that attitudes do not affect behavior--their influence may be more subtle than the available measuring instruments can detect.

Immediate Outcomes in Parent/Child Interactions

Parent training programs apparently affect the pattern of interaction between parents and children. Evaluation designs which included assessment of changes in parent-child interaction found significant program effects. The two major areas of interaction that were assessed were parents' verbal behavior and nonverbal behavior (teaching style or level of responsiveness, for example).

Verbal behavior: As with the measures of parent attitude, various instruments (often experimental) were used to assess parents' language during interactions with their child. The programs consistently found evidence of change in parents' patterns of language in the desired directions. The two aspects of parents' verbal behavior that were most commonly assessed were (a) use of language to reinforce or support the child's efforts, and (b) use of syntactically complex or varied language patterns.

Three programs assessed the effect of the intervention upon frequency of use of supportive language. In all three (Ypsilanti Infant Education Project, Teaching Parents Teaching, and Second Generation Mother Study), it was found in immediate post-testing that program mothers significantly increased their use of verbal reinforcement or positive feedback while teaching their children. In the latter two studies, program mothers also decreased their use of negative feedback.

Three programs assessed some aspect of the syntax of parents' language--variety of sentence types, specificity of the language, syntactice complexity, etc. Program sponsors for the Structured Language Program (Mann), Parents Are Teachers Too Program, and the New Orleans PCDC expected that the intervention would alter the patterns and uses of parents' language in teaching situations with their children. In the Structured Language Program it was found that program mothers, by the end of the program, used a more advanced syntax and a greater range of language interaction patterns. In the PATTP, parents in language intervention groups began to use more specific language to help their child on tasks. In the New Orleans PCDC, the language of program mothers became more elaborated, and the mothers more often expanded on their child's verbalizations and elicited verbal responses from their child.

The six programs that assessed parents' language behavior in parent/child teaching situations found positive change in at least one aspect of language. Most of the measures used included several subscales, and, typically, evidence of change was found on only some of the total number of subscales. In some cases, programs failed to find change in areas they had hypothesized as changing. For instance, in the New Orleans PCDC, the program mothers did not increase the amount of praise or positive reinforcement that they used. In other cases, programs made no specific hypotheses about which subscales would show changes; change on any subscale thus confirmed their expectations. Recognizing the limitations of these data, it can be concluded that these programs, as a group, were successful in altering the language of program parents.

Nonverbal behavior: Programs also assessed a variety of nonverbal behaviors during parent/child interaction. The instruments uses were usually experimental observation techniques.[1]

One major aspect of nonverbal behavior studies was the level of social responsiveness of the parent to the child. Three programs reported results on this aspect of parent/child interaction. In the Ypsilanti Infant Education Project, the Houston PCDC, and the Birmingham PCDC, program parents were judged to be more responsive, warmer, more sensitive, or more relaxed with their children, when compared with control parent/child pairs at the end of or during intervention.

A second aspect of nonverbal behavior studied was degree of active participation by parents during interactions with their child or during teaching tasks. In the Barbrack study of home visiting strategies and the New Orleans PCDC, program parents were rated as participating more than control parents during interaction with their children.

All five programs that looked at parents' nonverbal behavior found significant differences between program and control parents. The measures used were often devised by program staff, and the different programs rarely measured exactly the same aspect of behavior. The consistently positive results in these two major areas, however, suggest that these intervention programs did change parents' nonverbal behaviors with their children in ways hypothesized to stimulate the child's development.

Positive changes in parent behavior and in children's school-related performance were the twin objectives of most of these programs. Is there a relationship between these two goals? If the behavior of the parents mediated the changes in the children, programs reporting significant changes in parents would also report significant changes in the children. Child behavior might not change, within the time limits of these programs, when parent behavior changed, but changes in children's performance should presumably occur only if parental behavior changed also.

---

[1] Two examples of instruments used to assess nonverbal behavior are the Mothers Observation Checklist (part of the Bayley Scales) and the Maternal Teaching Style Instrument.

Most of the programs that found positive changes in parents' behavior also found that the program children significantly outperformed the control children at the immediate end of the program. Two programs did not find a relationship. In the study of Three Home Visiting Strategies and the Parents Are Teachers Too Program, program parents scored significantly higher than nonprogram parents at the end of the intervention on measures of parent/child interaction; there were not, however, significant differences between the groups of children.

Relationships have been found between particular parent behaviors and children's performance. Gordon and Jester (1972) found that parent behaviors which elicited a response from the child and that indicated responsiveness to the child were significantly and positively correlated with children's performance on IQ tests. In the Ypsilanti Infant Education Project, the amount of parent verbal behavior during interaction correlated significantly with infant scores on intelligence tests. The correlations found in these two studies suggest that the behaviors focused on in the parent training are related to the intellectual functioning of the children.

Immediate Changes in the Home Environment

In these evaluations, the impact of programs upon two aspects of home environments were examined: changes in the performance of siblings and changes in the quality of the stimulation in the home.

Changes in siblings in program families: Program sponsors hypothesized that parents who received training as teachers of their own child would use their new skills with both the "target" child in the program and with other children. Improvement in sibling performance over the period of the intervention, therefore, could be seen as an indication that program parents were changing their home behavior. Siblings in program families were tested in the Early Training Project (Gray) and the Study of Intrafamily Diffusion Effects (Gray & Gilmer). Both studies found that the younger siblings in families where parents participated in some kind of training scored significantly higher than control children on a standardized IQ test. The results supported the hypothesis that intervention produced changes in the parents' home behaviors which benefited the intellectual development of all the children in the home.

Changes in the stimulation in the home: Five programs evaluated changes in the home environments of program and control families, using standardized measures: the Cognitive Home Environment Scale or Caldwell's Home Inventory. Three programs--the Ypsilanti Early Education Program (Radin), SKIP, and ECSTPEP--found that program parents clearly scored higher on the home measures than did control parents or parents who had received treatments that were not focused on training them as teachers. In the ECSTPEP, the differences were found at the one-year follow-up testing. In the Houston PCDC, first-year results were not clear. After families had been in the program for two years, a trend emerged favoring program over control families on measures of home environment. In the Ypsilanti Perry Preschool Program, no significant differences were found between the groups of families at the end of intervention.

Other Changes in Parents

Some of the program evaluations reported an increase in parent initiative in gaining new skills or new positions in the community. The Birmingham PCDC, Project Early Push, and the Study of Intrafamily Diffusion Effects all reported that program parents had made important changes in their lives which made them more self-sufficient and effective.

Differential Effects of the Programs on Parents

The data available at this time cannot say whether some programs are more effective than others in producing changes in parents or whether certain features of parent components are related to greater effectiveness in producing changes in parents. The data across programs were not sufficiently comparable to permit valid comparisons. Also, since the programs that examined parent behavior were relatively similar in the features of their parent components, we could not compare different program features.

CONCLUDING STATEMENTS

In this paper we have summarized and compared the outcomes of a group of preschool intervention programs developed to help parents teach their own children. As a group, the programs consistently produced significant immediate gains in children's IQ scores, seemed to show long-term effects on children's IQ's and their school performance, and seemed to alter in a positive direction the teaching behavior of parents. The success of these parent training programs, together with data from within-program comparisons of components with and without parent involvement, suggest that parent participation has a systematically beneficial effect across programs of this type.

Projects designed to promote parent participation create several effects that may contribute in different ways to the success of such efforts. These include: (a) an increase in parents' awareness of their child's behavior and their influence on him or her, (b) a more systematic focusing on parent/child interaction around educational or intellectual activities, (c) an increase in the level of verbal interaction between parents and children, and (d) an increase in the amount of parent feedback and responsiveness to the child.

Although almost all of the programs were successful in producing gains in children, some were apparently more effective than others. The reasons for this differential effectiveness were not clearly identified. The four program features which we hypothesized might influence the level of program effectiveness are not all strongly related to outcomes, though some are associated at a modest level. In general, however, they are not adequate to explain the differences in success among the programs. Descriptions provided by the sponsors indicate that the programs as formulated should be quite different from one another in approach, design, and procedures. These sponsor-defined differences, however, do not account for disparities in program outcomes. The programs themselves were not observed, however, and there may be a discrepancy between the written description of activities and the programs as they were actually carried out in the home or classroom. Attempts to relate the features presented in program descriptions to outcomes can thus yield only incomplete data.

The weak relationship in the data between major program features and child outcomes raises other possibilities. It may be that the true magnitude of gains is roughly the same for all programs and that differences in outcome are the result of random variation. Some suggestion that this may be true comes from the wide variation in gains in programs which share several features. The gains achieved in the group of programs fall in something approximating a normal distribution--a few were very small, a few very large, and most quite moderate. There are two kinds of evidence against this proposition, however. First, certain programs have replicated their treatment at one site or in different sites and have usually found consistent results. Second, there is little overlap among programs in the magnitude of gains produced in multiple replications. The programs, in our opinion, produce outcomes that differ from one program to another in a non-random fashion.

The lack of evidence for clearly different effects of presumably distinct treatment variables suggests that unidentified extra-treatment variables, such as method of selecting and assigning subjects, age of subjects, length of treatment, and other features may have contributed to program outcomes. These aspects were not systematically examined in this paper, and the information available to us would not permit this type of inspection.

For example, although most subjects in the program were randomly assigned to treatment and control groups, the pool available for assignment came from a self-selected sample of interested parents. The differences that emerged among programs might be related to the ability of the staff to recruit and to create enthusiasm in the families whom they approached. There may be wide variation in the level of trust, enthusiasm, and expectation for success among programs. While it does appear that the programs have an effect and that some programs are rather consistently more effective than others, at this point it does not seem reasonable to draw conclusions about the contribution of individual program features to the effectiveness of a program.

Any conclusions drawn from the data in the program descriptions must be tentative at best, despite the apparent consistency from one evaluation report to another. The quality of the data is not high, and the evaluation designs are vulnerable to various criticisms. Perhaps as the programs continue and data become more adequate, it will be possible to answer some of the questions that this summary can only raise. This is not a criticism of the program directors and staff; it is exceedingly difficult to get the kind of evidence that would be needed to draw definitive conclusions, and the program directors of these projects have done a remarkable job in attempting to help us examine the effects of their efforts. Our effort has been to summarize the present status of outcomes of the parent training programs.

The assessment of program outcomes deals with changes intended to be produced by the programs. It might be worthwhile to study whether a family's participation brought consequences which are not reflected in test scores or whether it altered parent behavior of the kinds not built into the program approach. As a result of the programs, have other benefits come about--such as more social interaction, the desire for greater training, more contacts with middle-class institutions, greater opportunities for community activities--which members of the family find rewarding? What are the unintended consequences of family intervention? Have there been problems associated with a family's involvement? Have parents been led to expect their children to do better in school than they actually do, thus creating expectations that are not fulfilled? Do the programs promise more than they can deliver?

We earlier identified the relatively common assumptions that stimulated the development of these programs. These assumptions were shared by most of the sponsors. We have not dealt with the wider question of how this type of intervention and its assumptions fit in an overall approach for promoting school achievement in low-income children in the United States. A general issue that arises has to do with the moral right of professionals to inter-

vene in the lives of those whom they regard as educationally disadvantaged. Intervention implies that those who are doing the intervening have something to offer which is unavailable to those for whom the intervention is planned. In the programs discussed here, professionals offered parents more effective teaching skills than they had developed on their own. Further, the program sponsors, funding agencies, and sometimes other local groups judged that low-income families would benefit from this kind of intervention.

Families were not involved in the decisions which led to the program design and implementation. Program sponsors made most of the decisions--they saw the need, planned, initiated, and administered the programs. The families made the decision whether to participate.

This is not to suggest that both the families and professionals involved in the programs did not share certain basic values about the importance of schooling and educational achievement. The point being raised concerns the ethical problems with professional intervention in the life-style of a group of families quite different from that of the professionals. The desire to raise the school achievement of low-income groups is readily acceptable; not all means of achieving that goal are.

One way to view these questions of policy is to note that these programs usually are designed by middle-class professionals; the parent components are relatively didactic, the content of the training is determined by professionals, and the goals for training--the "optimal" parenting style--are established by the program sponsors. These programs bring a standard of parenting into the lives of low-income families that is modeled to some degree on the middle-class family ideal type. This is especially true of the programs started several years ago, and although those developed more recently have moved away somewhat from predominantly professional control to include parents' ideas in planning and parents' own goals, the difference may be more style than substance.

On the other hand, many parents share the desire to have their children achieve at a satisfactory level in schools. These programs thus bring together the middle-class professional and the low-income families at a point of common values and aspirations. Perhaps these programs eventually will combine in a more reciprocal way the right of parents to decide the character of their own experience and their child's education and the technical resources that professionals can bring to bear on the development of specific educational skills.

APPENDIX

Two persistent problems in interpreting evaluation data from intervention programs, which select children with relatively low test scores, are fadeout over time and the possibility that false positive results are created by regression to the mean. Fadeout of gains occurs when scores of the experimental group approach scores of control groups, usually by erosion of initial progress. Regression to the mean is also a possibility when groups have relatively low pretest IQ scores. Groups who on initial pretest score well below the mean for the population are likely, upon retesting, to score at a point nearer the mean of the distribution of the population from which they were drawn. To the extent that this occurs, gains which appear to be the result of program efforts can also be interpreted as statistical effects which would have occurred at retesting in the absence of an intervention program. The regression to the mean phenomenon eroded confidence in program evaluation results (Bronfenbrenner, 1974).

The data presented in the summary of evaluations of this report do not provide complete information on which to assess the likelihood of regression or fadeout effects in the various studies. This appendix includes figures arranged in ways that may permit judgments to be made about the plausibility of the fadeout and regression phenomena as alternative explanations for the findings summarized earlier.

These data are presented to help answer these questions:

1. After a program ends, is the gain or loss in IQ test scores related to the level of IQ scores at the beginning of the program? (See Figure 4, p. 239).

2. Do the control groups used in the studies show changes toward the mean from their initial pre-program scores? (See Figure 4, p. 239).

3. Do post-program changes reflect a fadeout of initial gains? (See Figure 4, p. 239).

4. After a program ends is the gain or loss in IQ test scores related to the amount gained during the program? (See Figure 5, p. 240).

We have grouped programs by level of pretest IQ in order to summarize and simplify presentation. Follow-up testing in the first phase was done up to twelve months after the end of the program. Testing in the second phase was done between twelve and twenty-four months after the end of the program. The third phase includes testing done between twenty-four and thirty-six months after the program terminated. In Figure 4, phases two and three are combined. This was done to avoid dropping programs, since some sponsors reported data from follow-up testing which fits our category "phase two," others reported data which fall into "phase three" and some reported data for both.

We report averaged data from both where it is available and take either phase two or phase three data as an estimate where only one has been reported. There are fewer control than experimental groups, and data from control testing are grouped into two rather than three IQ categories.

Our interpretation of the data in the figures is that gains produced by the programs do not show substantial fadeout effects, nor can they be accounted for by the regression effect. This conclusion is based on the pattern of program gains and subsequent changes which show only small shifts toward the population IQ mean. Regression effects seem to appear in the control groups, although even there the amount of change from level of initial IQ score is relatively small even for children who score in the low 80's. The amount of loss after a program ends is related to the magnitude of gains made during the program, but these losses are small compared to the gains made during the program and they are minimal for gains of ten points or less. There are residual gains in the second and third follow-up phases of roughly ten or twelve points.

FIGURE 4

SUMMARY OF GAINS BY EXPERIMENTAL AND CONTROL GROUPS
(GROUPED BY PRETEST IQ)

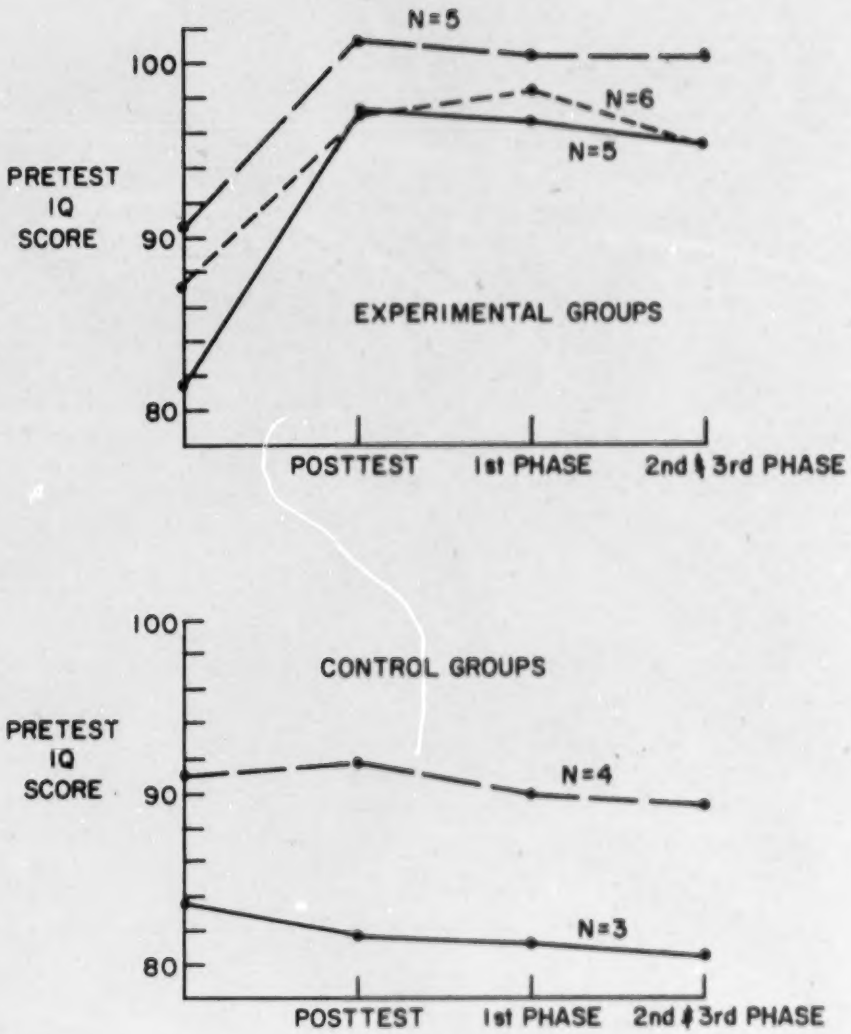
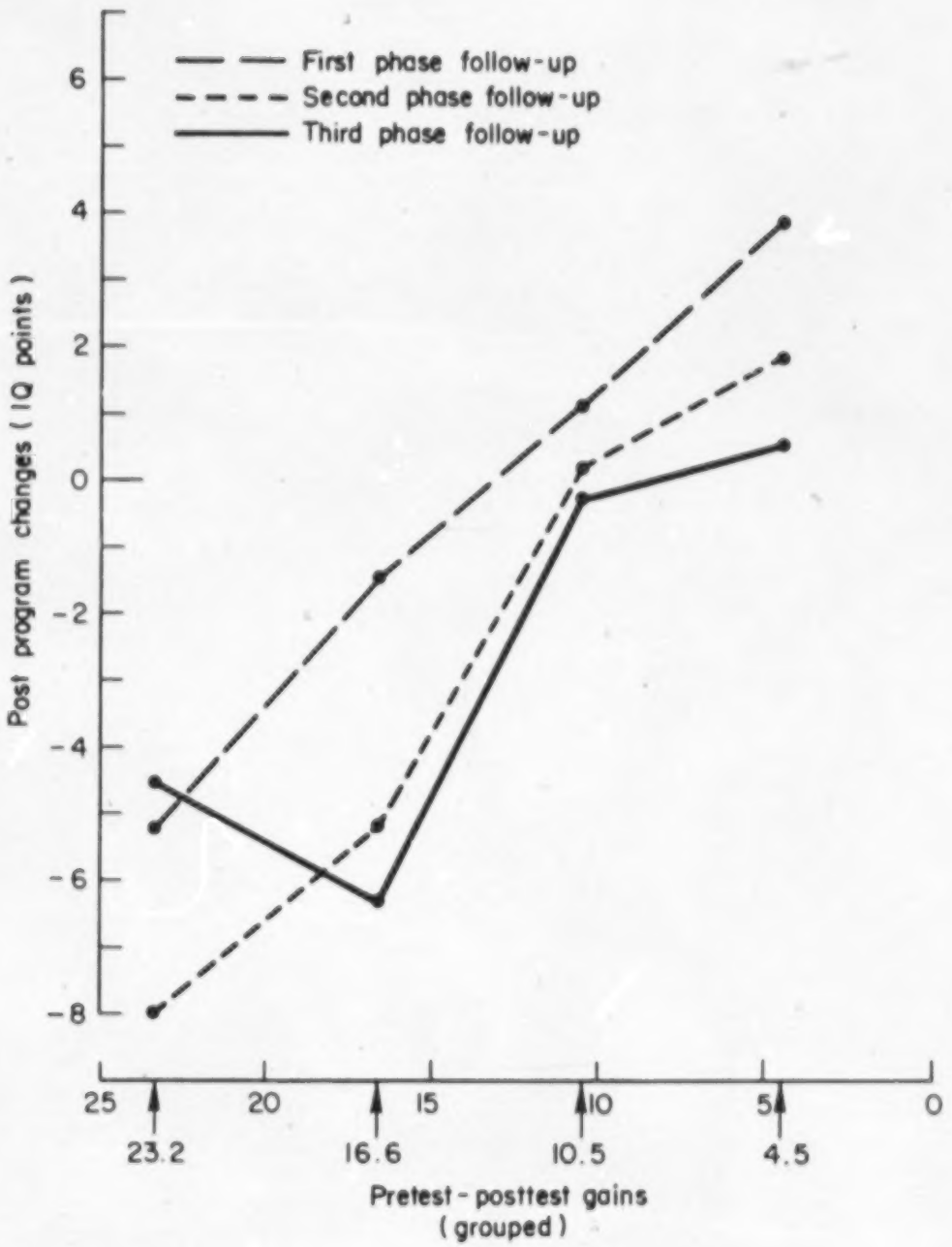


FIGURE 5

FOLLOW-UP CHANGES IN IQ BY MAGNITUDE OF PRE- POSTTEST GAINS



REFERENCES

I. References from "Introduction" and "The Effectiveness of Parent Training Programs."

Becker, W. S., & Krug, R. S. The parental attitude research instrument: A research review. Child Development, 1965, 36, pp. 329-365.

Bloom, B. S. Stability and change in human characteristics. New York: John Wiley & Sons, Inc., 1964.

Brim, O. G. Education for child rearing. New York: Russell Sage Foundation, 1959.

Bronfenbrenner, U. Is early intervention effective? Office of Child Development. U. S. Department of Health, Education and Welfare, Washington, D. C., 1974.

Campbell, D. T., & Frey, P. W. The implications of learning theory for the fade-out of gains from compensatory education. In J. Hellmuth (Ed.), Compensatory education: A national debate, disadvantaged child, vol.3. New York: Brunner/Mazel, 1970.

Cicirelli, V. C. et al. The impact of Head Start: An evaluation of the effects of Head Start on children's cognitive and affective development. Athens, Ohio: Westinghouse Learning Corporation, Ohio University, 1969.

Coleman, J. S., et al. Equality of educational opportunity. Washington, D. C.: U. S. Office of Education, 1966.

Cremin, L. American education: The colonial experience, 1607-1783. New York: Harper & Row, 1970.

Good, C. V. (Ed.) Dictionary of Education. New York: McGraw-Hill, 1973.

Hess, R. D. Parental behavior and children's school achievement, implications for Head Start. In Critical issues in research related to disadvantaged children. Princeton, N. J.: Educational Testing Service, 1969.

Hunt, J. M. The psychological basis for using preschool enrichment as an antidote for cultural deprivation. In J. Hellmuth (Ed.), Disadvantaged Child, vol. 1. Seattle: Special Child Publications of the Seattle Seguin School, Inc. 1967, pp. 255-299.

Jamison, D., Suppes, P., & Wells, S. The effectiveness of alternative instructional media: A survey. Review of Educational Research, 1974, 44(1), pp. 1-69.

Jencks, C. et al. Inequality: a re-assessment of the effect of family and schooling in America. New York: Basic Books, 1972.

Kirst, M. W., & Mosher, E. K. The politics of public education. Review of Educational Research, December, 1969.

Rosenthal, R., & Jacobson, L. Teachers' expectancies: Determinants of pupils' IQ gains. Psychological Reports, 1966, 19, 115-118.

Schaefer, E. A home tutoring program. Children, 1969, 16(2), pp.59-61.

Schaefer, E. & Aaronson, M. Infant education research project: Implementation and implications of a home tutoring program. In R. K. Parker (Ed.) The preschool in action. Boston: Allyn & Bacon, 1972.

Stallings, J. & Kaskowitz, D. H. Follow Through program classroom observation evaluation, 1972-73. Menlo Park, CA: Stanford Research Institute.

Stanford Research Institute. Implementation of planned variation in Head Start: Preliminary evaluations of planned variation in Head Start according to Follow Through approaches (1979-1970). Menlo Park, California: Stanford Research Institute, 1971.

Sunley, R. Early 19th century American literature on child rearing In M. Mead & M. Wolfenster (Ed.), Childhood in Contemporary Culture. Chicago: University of Chicago Press, 1955.

Tyack, D. The one best system: A history of American urban education. Cambridge: Harvard University Press, 1974.

White, S., et al. Federal programs for young children, vol. II. Cambridge: Huron Institute, 1973.

Wolff, M. & Stein, A. Head Start six months later. In J. L. Frost (Ed.), Early Childhood Education Rediscovered: Readings. New York: Holt Rinehart & Winston, 1967.

II. References for Program Summaries

The 29 programs are listed below in alphabetical order according to program title. For each program, a small set of central references are provided, rather than an exhaustive listing of all reports that are available and that were used in this paper. The name and address of a contact person for each program is supplied, as a source for further reports and information.

Birmingham Parent-Child Development Center

Dr. Thomas Lasater
Dr. Paul Malone
Parent Child Development Center
410 South 13th Street
Birmingham, Alabama

Birmingham parent-child development center progress report, April, 1974, Birmingham, Alabama

Early Child Stimulation Through Parent Education Program

Dr. Ira Gordon
Institute for Development of Human Resources
College of Education
University of Florida
Gainesville, Florida 32601

Gordon, I. J. The Florida parent education early intervention projects: A longitudinal look. Institute for Development of Human Resources, College of Education, University of Florida, Gainesville, Florida, 1973.

Gordon, I. J. A home learning center approach to early stimulation. Institute for Development of Human Resources, College of Education, University of Florida, Gainesville, Florida, June, 1972.

Gordon, I. J. Early child stimulation through parent education, Institute for Development of Human Resrouces, College of Education, University of Florida, Gainesville, Florida, 1969.

Early Training Program

Dr. Susan Gray
Demonstration and Research Center for
Early Education (DARCEE)
George Peabody College for Teachers
Nashville, Tennessee 37203

Atyas, J., & Gray, S. Towards a theoretical rationale for a home visiting program with mothers. Preliminary papers from DARCEE, J. F. Kennedy Center for Research on Human Development and Education, George Peabody College for Teachers, Nashville, TN., May, 1973.

Gray, S. & Klaus, R. The early training project: A seventh year report. Child Development, 1970, 4, 909-924. (ERIC)[1]

Gray, S. & Klaus, R. The early training project for disadadvantaged children: A report after five year. Monographs of the Society for Research in Child Development, 1969, 33(4). (ERIC)

First Generation Mother Study

Dr. Christopher Barbrack
Demonstration and Research Center for
Early Education
George Peabody College for Teachers
Nashville, Tennessee 37203

Barbrack, C. R., & Horton, D. Educational intervention in the home and paraprofessional career development: A first generation mother study. DARCEE Papers and Reports, vol. 4, no. 3. George Peabody College for Teachers, Nashville, TN. (ERIC, 1970)

Barbrack, C. R., et al. A guide for home visitors. DARCEE Papers and Reports, George Peabody College for Teacher, Nashville, TN. (ERIC, 1970)

Hawaii University Center for Research in Early Childhood Education

University of Hawaii at Manoa
Education Research and Development
Center
West Annex 2
1776 University Avenue
Honolulu, Hawaii 96822

Dr. Dorothy Adkins
122 West Second Avenue
Plain City, Ohio 43202

Adkins, D. C., & O'Malley, J. Final report on continuation of programmatic research on curricular modules for early childhood education and parent participation. University of Hawaii, Center for Research in Early Childhood Education, Honolulu, HI, 1971. (Also available for 1969-70)

Adkins, D. C., & Crowell, D. C. Final report on development of a preschool language-oriented curriculum with a structured parent education program. University of Hawaii, Head Start Evaluation and Research Center, Honlulu, HI. (ERIC, 1969)

[1]Also available through the ERIC Clearinghouse Information Center.

Home-Oriented Preschool Education Program

Dr. Roy Alford
Appalachia Educational Laboratory, Inc.
Post Office Box 1348
Charleston, West Virginia 25325

Alford, R. W., & Hines, B. W. Demonstration of a home-oriented early childhood education program. Final report. Appalachia Educational Laboratory, Charles (ERIC, 1972)

Summative evaluation of the home-oriented preschool education program during the 1971-72 demonstration phase. Research and Evaluation Division, Appalachia Educational Laboratory, Inc., Charleston, West Virginia, December, 1972.

Bertram, C., Hines, B., & Macdonald, R. Summative evaluation of the home-oriented preschool education program, summary report. Division of Research and Evaluation, Appalachia Educational Laboratory, Inc., Charleston, West Virginia, December, 1971.

Houston Parent-Child Development Center

Dr. Hazel Lelar
Houston PCDC
Department of Psychology
University of Houston
Houston, Texas 77004

Johnson, D., Lelar, H. et al. The Houston parent-child development center: A parent education program for Mexican-American families. American Journal of Ortho-Psychiatry, 1974, 44(1), 121-128.

Lelar, H., Johnson, D., Kahn, A., & Brandt, L. Research report of the Houston parent-child development center. University of Houston, Houston, Texas, January, 1974.

Johnson, D., Lelar, H., et al. Refunding Document 1973-1974 to the Office of Economic Opportunity, Washington, D. C., April, 1973.

Infant Intervention Project

Dr. Betty Forrester
Demonstration and Research Center for
Early Education
George Peabody College for Teachers
Nashville, Tennessee 37203

Forrester, B. et al., The intervention study with mothers and infants. DARCEE, George Peabody College, Nashville, Tennessee, 1971. (ERIC)

Learning to Learn Program

Dr. Herbert Sprigle
Learning to Learn School
1936 San Marco Boulevard
Jacksonville, Florida 32207

Sprigle, H. A. The learning to learn teacher education program. Learning to Learn School, Jacksonville, Florida, 32207, July, 1974.

Van De Riet, V., & Resnick, M. B. Learning to learn: An effective model for early childhood education. University of Florida, Gainesville, Florida, December, 1973.

Learning to learn program, Jacksonville, Florida: Preschool Program in compensatory education, I. American Institute for Research in Behavioral Sciences, Palo Alto, CA. (ERIC, 1969)

Mother-Child Home Program

Dr. Phyllis Levenstein
Mother-Child Home Program
Family Service Association of
Nassau County, Inc.
5 Broadway
Freeport, New York 11520

Madden, J., Levenstein, P., Levenstein, S. Longitudinal IQ outcomes of the mother-child home program, 1967-1973. Verbal Interaction Project, Family Service Association of Nassau County, Inc., and State University of New York at Stony Brook, Freeport, New York, June, 1974.

Levenstein, P. Research plan, September 1973-August 1978, first year: September 1973-August, 1974. Verbal Interaction Project, Family Service Association of Nassau County, Inc., December, 1972.

Levenstein, P. Verbal interaction project: Aiding cognitive growth in disadvantaged preschoolers through the mother-child home program--July 1, 1967 - August 31, 1970, final report. Family Service Association of Nassau County, Inc. February, 1971.

Levenstein, P. Cognitive growth in preschoolers through verbal interaction with mothers. American Journal of Orthopsychiatry, 1970, 40(3), 426-432.

Mothers Training Program

Dr. Merle Karnes
Institute of Research for
Exceptional Children
University of Illinois
Urbana, Illinois 61801

Karnes, M. B., Studley, W. N., Wright, W. R., & Hodgins, A. An approach for working with mothers of disadvantaged preschool children. Merrill Palmer Quarterly, 1968, 14(2), 174-184.

Karnes, M. B., Teska, J., Hodgins, A., & Badger, E. Educational intervention at home by mothers of disadvantaged infants. Child Development, 1970, 41, 925-935.

New Orleans Parent-Child Development Center

Dr. Susan Andrews
Parent Child Development Center
3300 Freret Street
New Orleans, Louisiana 70115

Andrews, S., Bache, W., Blumenthal, J., Wiener, G. Summary of research findings of the New Orleans parent-child development center, February, 1974.

Oakland Preschool Program

Dr. Joye Waters, Evaluator
Children's Centers Preschool Programs
831 East 14th Street
Oakland, California 94606

Waters, J. J. Preschool program: Narrative evaluation report 1971-72 state preschool program. Research Department, Oakland Unified School District, Oakland, CA.

The preschool program, Oakland, California. American Institute for Research in Behavioral Sciences, Palo Alto, CA. (ERIC, 1969)

Parent-Child Course

Dr. Nicholas Rayder
Parent-Child Course
Far West Laboratory for Educational
Research and Development
1855 Folsom Street
San Francisco, California 94103

Rosenau, R., & Tuck, B. A guide to securing and installing the parent/child toy-lending library. Far West Regional Laboratory for Educational Research and Development, San Francisco, California, April, 1972. (ERIC, 1972)

Nimnicht, G. A report on the evaluation of the parent/child toy-lending library program. Far West Regional Laboratory for Educational Research and Development, San Francisco, California, August, 1971. (ERIC, 1971)

Parent Are Teachers Too Program

Dr. Robert Boger
Parent Are Teachers Too Program
Michigan State University
College for Human Ecology
Institute for Family and Child Study
East Lansing, Michigan 48823

Boger, R., Kuipers, J., et al. Parent are teachers too: A curriculum module for increasing positive parent-child, parent-teacher, and parent-school interaction. Final report, vol. I. Michigan State University, Institute for Family and Child Study, College of Human Ecology, East Lansing, Michigan, September, 1973.

Boger, R., Kuipers, J. et al. Parents are teachers too: A curriculum module for increasing positive parent-child, parent-teacher, and parent-school interaction. Final report, vol. II. Michigan State University, Institute for Family and Child Study, College of Human Ecology, East Lansing, Michigan, September 1971

Boger, R., Kuipers, J., & Berry, M. Parents as primary change agents in an experimental head start program of language intervention. Michigan State University, Head Start Evaluation and Research Center, East Lansing, MI, Nov., 1969.

Project Early Push

Ms. Joan Downey
Project Administrator of Special
Programs in Early Childhood Education
Project Early Push
420 City Hall
Buffalo, New York 14202

Project early push: Buffalo, New York: Preschool program in compensatory education. American Institute for Research in Behavioral Sciences, 1969. (ERIC, 1969)

Second Generation Mother Study

Dr. Christopher Barbrack
Demonstration and Research Center for
Early Education
George Peabody College for Teachers
Nashville, Tennessee 37203

Barbrack, C. R., & Horton, D. M. Educational intervention in the home and paraprofessional career development: A second generation mother study with an emphasis on costs and benefits. Final report. DARCEE Papers and Reports, 1970, 4(4). George Peabody College for Teachers, Nashville, Tennessee. (ERIC, 1970)

Spanish Dame Bilingual School

Mrs. Toni Micotti
Bilingual Education Project
Santa Clara County
Office of Education
45 Santa Teresa Street
San Jose, CA. 95110

Bilingual education project, Santa Clara County, California, Final report, 1972.

Owens, T. R., & Hernandez, R. F. Final evaluation report for the Santa Clara County bilingual/bicultural education project (Spanish Dame School Project). Center for Planning and Evaluation, San Jose, California, June, 1972.

Special Kindergarten Intervention Program

Dr. Norma Radin
University of Michigan
School of Social Work
1605 Frieze Bldg.
Ann Arbor, Michigan 48104

Final report of the supplementary kindergarten intervention program, cohort 2, Ypsilanti Public Schools and University of Michigan School of Social Work, September, 1969.

Radin, N. The impact of a kindergarten home counseling program. Exceptional Children, 1969, 251-256.

Structured Language Program

Dr. Marlis Mann
University of Virginia
College of Education
Charlottesville, Virginia 22903

Mann, M. The effects of a preschool language program on two-year-old children and their mothers. Arizona State University, Tempe, Arizona. (ERIC, 1970)

Study of Intrafamily Diffusion

Dr. Susan Gray
Dr. Barbara Gilmer
Demonstration and Research Center for
Early Education
George Peabody College for Teachers
Nashville, Tennessee 37203

Gilmer, B. R., & Gray, S. Intervention with mothers and young children: A study of intra-family effects. DARCEE Papers and Reports, vol. 4, no. 11. George Peabody College for Teachers, Nashville, Tennessee. (ERIC, 1970)

Teaching Parents Teaching

Dr. David Champagne
Learning Research and Development Center
University of Pittsburgh
Pittsburgh, Pennsylvania 15260

Champagne, D., & Goldman, R. Simulation activities for training parents and teachers as educational partners: A report and evaluation. Paper presented at AERA annual meeting, February, 1971.

Champagne, D. & Goldman, R. Development of a training program to increaseuse of reinforcement in informal teaching by mothers of educationally disadvantaged children. (ERIC, 1970)

Goldman, R., & Champagne, D. The design of parent involvement in the LRDC Follow Through model. Learning Research and Development Center, University of Pittsburgh, Pittsburgh, Pennsylvania.

Goldman, R. Cross-cultural adaptation of a program to involve parents in the children's learning. Child Welfare, 1973, 52(8), 521-532.

Three Home Visiting Strategies

Dr. Christopher Barbrack
Demonstration and Research Center for
Early Education
George Peabody College for Teachers
Nashville, Tennessee 37203

Barbrack, C. The effects of three home visiting strategies upon measures of children's academic and maternal teaching behavior. DARCEE Papers and Reports, vol. 4, no. 1. George Peabody College for Teachers, Nashville, Tennessee. (ERIC, 1970)

Ypsilanti-Carnegie Infant Education Project

Dr. Delores Lambie
Dr. David Weikart
High/Scope Educational Research Foundation
125 North Huron Street
Ypsilanti, Michigan 48197

Lambie, D., Bond, J., & Weikart, D. Final report. Ypsilanti-Carnegie infant education project. Infants, mothers and teachering: A study of infant education and home visits. High/Scope Educational Research Foundation. Ypsilanti, Michigan, July, 1973.

Ypsilanti Early Education Project

Dr. Norma Radin
University of Michigan
School of Social Work
1605 Frieze Bldg.
Ann Arbor, Michigan 48104

Radin, N. Three degrees of maternal involvement in a preschool program: Impact on mothers and children. Child Development, 1972, 43, 1355-1364.

Wittes, G., & Radin, N. Two approaches to group work with parents in a compensatory preschool program. Social Work, 1971, 16(1), 42-50.

Wittes, G., & Radin, N. Helping your child to learn: The nurturance approach. Ypsilanti Home and School Handbook, San Rafael, CA: Dimensions Publishing Company, 1969.

Ypsilanti Perry Preschool Program

Dr. David Weikart
High/Scope Educational Research Foundation
125 North Huron Street
Ypsilanti, Michigan 48197

Weikart, D. Development of effective preschool programs: A report on the results of the High/Scope-Ypsilanti preschool projects. Paper presented at the High/Schope Educational Research Foundation Conference, Ann Arbor, Michigan, May, 1973.

Weikart, D., Rogers, L., & Adcock, C. The cognitively-oriented curriculum: A framework for preschool teachers. Final report, vol. I. High/Scope Educational Research Foundation, Ypsilanti, Michigan, August, 1970. (ERIC, 1970)

Weikart, D., Deloria, D., Lawser, S., & Wiegerink, R. Longitudinal results of the Ypsilanti Perry preschool project. Final report, vol. II. High/Scope Educational Research Foundation, Ypsilanti, Michigan. (ERIC, 1970)

Ypsilanti Perry Curriculum Demonstration Project

Dr. David Weikart
High/Scope Educational Research Foundation
125 North Huron Street
Ypsilanti, Michigan 48197

Weikart, D. Ypsilanti preschool curriculum demonstration project, 1968-1971. High/Scope Educational Research Foundation, Ypsilanti, Michigan. (ERIC, 1969).